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Vol. XXV, No. 12

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buted monthly to finishing and paint shop foremen, ction superintendents, nts, purchasing agents and ny executives of metal-ng, woodworking and mis-eous industrial plants production cleaning and ng are major operations in and products manufacture.

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Acceptance under Section 34.64, P. L. & R., authorized

25 TWENTY-FIFTH YEAR OF PUBLICATION

Provides Colored Rubber. Tough, strong rubber products, both natural and synthetic, formerly obtainable only in black, may now be manufactured in every color of the rainbow as a result of the development of a silica pigment so fine that 300 million particles will fit on the head of an ordinary pin, it was announced here today by the Columbia Chemical Div'n. of the Pittsburgh Plate Glass Co.

"Hi-Sil," developed in the Company's Barberton, Ohio, research laboratories, has been hailed by the rubber industry as a revolutionary development in pigmentation. It is the first silica pigment to be developed which is not a labortary curiosity but one that can be manufactured in large quantities and at comparatively low cost.

* * *

Market Dates Changed. Notice has been given that the Grand Rapids Furniture Exposition dates have been changed to avoid conflict with our National holidays. In 1950 the show will be held starting on January 9 and June 19. The change benefits both buyer and manufacturers. It is to be hoped that the new dates will remain fixed.

* * *

New Paint Remover. Finishers have long sought a fast removal process for paint that could be sprayed on and washed off. Now, such a remover is said to be available. The material is sprayed on the painted surface followed by a high pressure wash to complete the operation. The new material meets stable storage requirements lacking in previous paint removers.

According to a report, paint was removed from a C-47 type airplane within half a day.

* * *

Buying Trends. Industry seems to be tightening its purchasing policy belt. There seems little chance that industry can or will reduce prices materially except through competition. Some of the larger purchasing departments are screening offers of sellers more carefully, increasing the number of bids asked and buying in quantity only when material savings are offered. Hand to mouth buying prevails at current market prices.

If no fourth round wage increases are in the offing, then the only basis for price increases would be the higher freight and trucking costs.

* * *

Fireproof Fabrics. According to Science Service, by the end of this year, cotton and rayon fabrics should be available that look and feel the same as the present ones, yet they will not burn. It is said that the treatment will not deteriorate, and that repeated washing or dry cleaning will not reduce the fireproof qualities.

The formula is secret; however, it is known that the chemical is a solution of titanium and antamony salts which react chemically with the mole-

(Continued on page 7)

cule of cellulose in both rayon and cotton. It does not stiffen or weaken the fabric, has no irritating effect on the skin, and adds only 15% to the weight of the fabric.

* * *

Flexible Adhesives for polyethylene coated surfaces are announced. These two new adhesives, known as Dispersite 1789 and 1822-A are furnished in aqueous dispersions suitable for spraying, roller coating or brushing.

* * *

Plastic Toy Promotion. The toy issue of Monsanto Chemical Company's plastic merchandiser (Vol. 3, No. 6) contains 40 pages (8½x11-in.) illustrating and briefly describing hundreds of toys by many manufacturers —all toys made of Monsanto plastic.

An accompanying letter to retail stores offers window trims and display materials without charge, and calls their attention to a full-page Saturday Evening Post advertisement to appear in November, featuring toys made of Monsanto plastic.

* * *

Rubberized fabrics made by the Aldan Rubber Co. of Philadelphia are used in the fabrication of industrial aprons and sleeves where resistance to oils, greases, acids or solvents is a prime requirement. Coated with a Hycar rubber composition, these products are used to afford workers in plants and industrial laboratories complete protection against a variety of chemical materials. They are resistant to printing inks, paint dryers, hydraulic fluids, photographic solutions, refrigerants, pickling baths, etc.

Coatings from Hycar OR-15 and OR-25, two special purpose oil resistant rubbers manufactured by B. F. Goodrich Chemical Co., have been designed for many applications. After coating fabric with a Hycar compo-

(Continued on page 116)

Sprays on in minutes with your regular spray equipment. Dries quickly to form non-combustible, self-supporting film. Peels off as easily as peeling a banana — no matter how thick the accumulated spray dust. Eliminates paper, grease, hand-scraping, fire-hazard. Now used in hundreds of large and small plants because *it saves time and money.*

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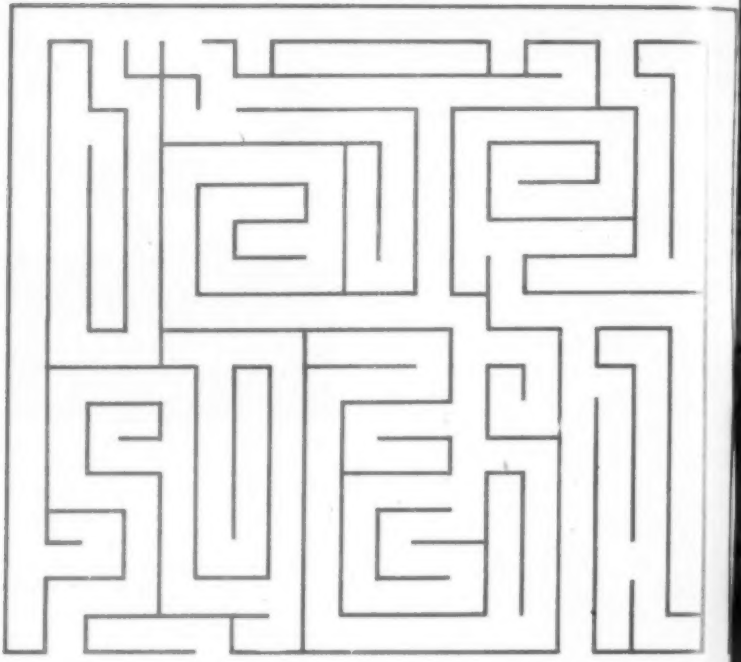

This famous garden maze was laid out in the Midd
Ages near London on the hedge and alley syste
There are four different entrances, only one of whic
leads to the center. See how quickly you find th
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Pickling Machine Reduces Pickling Time to Less

t Reduction in Volume of Processing Solutions!

ipment, with positive protection for continuous
ow available to porcelain enameling plants

e new Mahon Hydro-Hermetic Seal (Patents Applied For) makes possible this noteworthy advance the development of practical and economical equipment for the preparation of metal surfaces to eive porcelain enamel.

e process is continuous through all operations: Emulsion Cleaning, Clear Water Rinse, Alkali eaning, Three Stage Water Rinse, Sulphuric Acid Bath, Acid Water Rinse, Nickel Sulphate Bath, dium Cyanide Neutralizer, Borax Neutralizer Rinse, and Hot Air Dry-Off.

nks and tunnel housing are of mild steel throughout except in areas where corrosive materials are contact or fumes prevalent. In these areas, steel is lined with lead or rubber, or Monel Metal is ployed. The monorail conveyor, which operates in the open above the machine, is fitted with Monel tal adapters which are the load carrying medium that passes through the Hydro-Hermetic Seal—no spray or fumes can escape or work up the adapters to damage the conveyor.

The Hydro-Hermetic Seal, which seals the top of this machine throughout its entire length, greatly increases processing efficiency in each stage. It also prevents the loss of active chemical fumes, reduces ventilating requirements to a minimum, and eliminates both the necessity for a tremendous intake of air through an open conveyor slot—hitherto general practice, and the resulting necessity for replacement of air within the building.

These Mahon Pickling Machines can be designed to meet any requirement of product processing, production rate, or plant layout.

Whatever your finishing requirements may be, whether it be Pickling Equipment, Porcelain Enamel Spray Booths, Dryers, Cleaning and Rust Proofing Equipment, or a complete Finishing System, you can turn to Mahon with complete confidence for the right equipment to do your particular job with utmost efficiency and economy . . . remember that the Mahon organization has pioneered development in this highly specialized field for twenty-nine years. Broad experience in every industry where finishing constitutes a major production operation, backed by constant research and experimentation, has endowed Mahon engineers with a wealth of technical knowledge and practical know-how not available to you elsewhere. A Mahon engineer will gladly explain the merits and the many advantages of this new type Pickling plant at your convenience.

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AHON

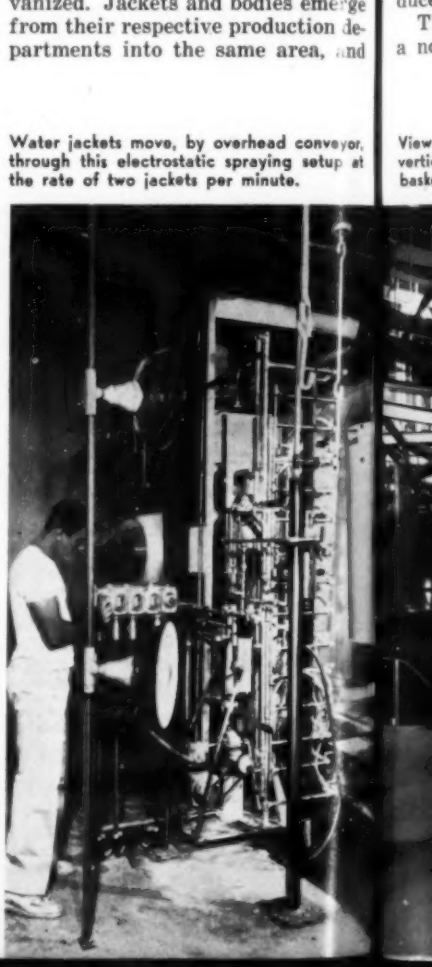
Automatic Finishing of V

AUTOMATIC fabrication, conveyorized assembly and finishing lines, and an uninterrupted production flow from the receiving department to shipping — these features characterize the new 132,000-sq.ft. plant of Mission Appliance Corporation at Hawthorne, California. These features have been developed to such an extent that when the company moved into its new quarters, it was found that 210 employees could turn out the same number of units that 280 had turned out in the old plant.

Gas-fired water heaters, with galvanized body tank and enameled jacket, are the principal products made. The company also turns out components for a radiant circulator infra-red heater which are assembled by a subsidiary company.

The narrowness and length of the 165x800-ft. factory building expedites straight-line production. One side of the building contains machine shops, a tooling department, and an area where water-heater jackets are formed and enameled. The other side contains departments where the water-heater bodies are formed, fabricated, welded and galvanized. Jackets and bodies emerge from their respective production departments into the same area, and

Water jackets move, by overhead conveyor, through this electrostatic spraying setup at the rate of two jackets per minute.



"When I walked through the Mission Appliance Corp. plant and observed the efficiency of their finishing setup, I thought of "Industrial Finishing." I have written an article about it and am submitting same to you."

Water Heaters

By Gilbert C. Close

this merged flow continues along a double-track roller-type conveyor line until the heaters are assembled, tested and crated for shipment. At peak production, heaters are produced at the rate of two a minute.

Though not a finishing operation, a noteworthy development by Mission Appliance plant engineers is the machine for automatically forming and welding the heavy-guage sheet steel heater tank bodies. In flat blanked and pierced form the bodies are stacked in a deck on the platform of a hydraulic lift. As the lift moves upward, the

View in pre-galvanizing department. Notice the monel-metal "work baskets" suspended by vertical hoist from overhead conveyor; and the sunken space in floor to receive base of work basket. This facilitates the loading of tanks to receive chemical treatment.

top sheet contacts an electric switch which energizes a series of electromagnets. These magnets grip the sheet and feed it into the forming rolls much like paper is gripped and fed into a printing press.

Just before the sheet enters the main forming roll an automatic positioner moves it sidewise against a squared stop; as a result it enters the roll straight and in squared position. The sheet is then rolled and automatically transferred to a gravity conveyor. This setup, with a single operator, is capable of producing 160 formed units in an hour. Currently, an automatic seam welder is under construction which will accept the rolled bodies from the gravity conveyor and weld them automatically. Right now, the bodies are seam welded on a separate machine.

Galvanizing; Conveyor; Automatic Operation

The galvanizing department where the body tanks are galvanized is one of the finest installations of its type on the West Coast. The department covers approximately 6000-sq.ft. of floor area and is force-ventilated to remove smog and acid fumes.

A conveyor track circles the ceiling of the pre-galvanizing area from which is suspended eight monel-metal work baskets. After the work baskets are loaded and raised to the conveyor, the operation is automatic until the treated bodies are delivered ready for galvanizing. Loaded baskets move in unison into and out of the various baths and over the drain troughs. The time cycle for each treatment is the same.

The baskets are trapezodial* in shape, about 8-ft. on one side and 7-ft. on the other, with the short side inward to facilitate close travel around curved portions of the conveyor track. When a basket is lowered for loading, the basket platform nests in a countersunk floor area the same shape and size, and deep enough to level the platform with the floor. By this arrangement tank bodies can be rolled onto the platform without being lifted or moved up or down an incline.

Pre-Treatment of Metal Before Galvanizing

Five pre-galvanizing solution tanks are available, but only three are in use at the present time. The tanks are above the floor, about 8-ft. high, and trapezodial in shape to match the work baskets. The solution tanks are rubber-lined and the exterior is painted with an acid-proof paint. Cement drain troughs are provided after each tank.

The pre-galvanizing treatment used consists of a sulphuric acid pickle, water rinse, and zinc ammonium chloride solution. The heater bodies are drained after each dip. After treatment, the work proceeds to an elevated platform at one end of the galvanizing tank. Heater bodies are unloaded from the basket and fed into the galvanizing tank by means of a gravity conveyor. They are taken from the tank by means of a small hoist and set aside to cool. Then they proceed directly to the final assembly line.

*A geometric figure having four straight sides, two sides parallel but of unequal length. The shorter parallel side (in this case) is centered with the longer side which is opposite to it.

(Continued on page 17)

Cleaned Tank Jackets Are Sprayed Electrostatically

A 300-ft. continuous overhead conveyor line threads the jacket manufacturing department and terminates finally in the area adjacent to the galvanized tank bodies near the head of the assembly line. After the jackets are formed, they are placed on the conveyor and move immediately into the spray cleaning compartment of an automatic cleaner-dryer. A detergent-type cleaning solution is used, and the jackets are automatically rotated during cleaning. Then they move on into the drying chamber, and thence into an electrostatic paint booth.

A 150,000-volt electrostatic field is used. Five spray guns with individual controls are mounted on a motor-driven vertical oscillator. The spray guns are operated at 24-lbs. per square inch pressure. Enamel is heated and maintained at a temperature of 140°F. About 120 jackets pass through the spray booth in an hour. A water curtain is used for trapping overspray. This spray painting operation, while entirely automatic, is under rigid process control to maintain uniform quality.

From the paint spray booth, the jackets continue forward into the baking oven where the enamel is baked for three minutes at 600°F. From the oven, the line moves to

Start of assembly line. Painted jackets and galvanized tanks are in the background.

the opposite side of the building and the enameled jackets are delivered to the final assembly area.

Insulation; Final Assembly; Testing; Crating

Final assembly, testing and crating of the water heaters is a blended operation. Once mounted on the roller-type conveyor assembly line, the units are not removed until they are ready for shipment. The inner tank is first mounted on a heater base, then placed on a crate base on the assembly line. Small metal cups on the crate base fit the heater legs and prevent slipping during subsequent handling.

Fiberglas insulation is then wrapped around the inner tank and held in place by a split cylindrical shield slightly smaller in diameter than the jacket. Then the jacket is slipped down over the shield, and the shield is removed. The units then move along the conveyor while heating elements and various controls are installed.

Moving forward on the same conveyor, the assembled heaters pass a test pit where connections are made and each heater is tested hydrostatically at 250-lbs. per square inch pressure. Beyond the test pit, each of the heaters is covered with moisture-resistant, dustproof paper bags, then crated in slat-type "wrap-around" wirebound box which attaches to the base already in place. When the heaters reach the end of the conveyor, they are ready for shipping department.

Heaters are assembled, tested and packed for shipment while on this roller-type conveyor.

DON'T LET IT HAPPEN IN YOUR PLANT!

PICKLING fumes do more than irritate your nose. They carry tiny drops of acid high above the tank and deposit them on roof beams and trusses, overhead cranes, conveyors, window frames, pipes and electrical fixtures.

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HOW WE PAINT AUTOMOBILE RUBBER

Weather Stripping

By A. P. Brunke

Detroit Industrial Paint Service Co.

SUITABLE fixtures for holding products in correct position for spray painting or dip finishing in a custom shop is always more or less of a problem. For rigid products, made of metal, wood or plastic, the solution is generally not too difficult, but for flexible products made of rubber the problem becomes more complex. In the case of that endless rubber weather

Workman puts extension flange of fixture into glass channel of rubber weather stripping. Masking canvas is permanently attached at hook end of fixture, and snaps together at the other end. Insert drawing above, shows cross-section of rubber weather strip, and the area to be painted before it is placed in position around rear window of automobile.

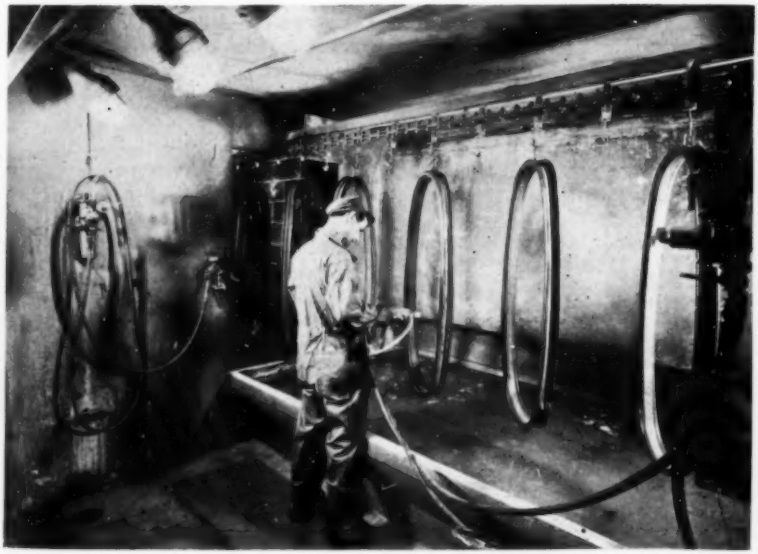
stripping which is installed around the rear glass of an automobile, where the product is to be painted is flexible and certain areas must be masked, then the job is really a problem.

The accompanying drawing shows a cross section of the rubber weather stripping. The part that will be inside the car is the only surface to be painted before installation. The glass channel (groove) must be masked to prevent any overspray from contacting it. The part outside the car also must be masked, as it will be painted at the body plant after it is installed in the automobile.

Special Fixtures Hold Masked Rubber Strips

After much thought, study and experimenting, the cold-rolled steel fixture shown in the picture at the beginning of this article was perfected. This elliptical-shaped fixture is about the same size and shape of the endless rubber weather strips. It also has a strip of masking canvas which, after the weather stripping is attached to the fixture, covers the area that will be on the outside of the automobile.

The masking canvas is attached to the fixture at one end of the ellipse and snaps together at the opposite end. As shown in the picture,



Spray coating rubber weather strips which are in position on elliptical-shaped fixtures and properly masked. Swivel hooks permit each fixture to be turned completely around for coating the other side of each masked rubber weather strip.

the glass channel is slipped over one of the extension flanges. This flange protects the glass channel from any overspray, and the solid metal back of the fixture protects the underside of the weather stripping from enamel. When two weather strips are in place on a fixture, and the masking canvas is snapped tight at the connecting end, the operator can spray paint with the assurance that only the surface requiring paint will be coated.

Flexible Paint Is Sprayed and Oven Cured

Just before the loaded fixtures are hung on the overhead conveyor, an operator wipes the surface of the rubber to be painted with lacquer thinner or solvent to remove any grease, finger prints, etc. The conveyor carries the loaded fixtures through a water curtain spray booth where the operator sprays a coat of special plastic enamel, first on one side and then on the other. The fixtures are suspended on swivel hooks. The viscosity of this material varies with its color. Flow-out time of about five minutes is allowed before the weather stripping enters an infra-red oven where the finish is cured for three minutes at 125° to 130°F.

Upon leaving the oven, weather stripping is removed from fixtures. The weather strips are hung from stationary racks to cool and air dry overnight, before they are packed in cartons for delivery. This cooling and air-drying is important to prevent the weather strips from sticking together and peeling. This is called the curing process.

Test for Flexibility; Cleaning the Fixtures

The paint coating must stand a complete bend, or one complete twist of the rubber strip without cracking or breaking.

The material used for coating the weather stripping is such that paint accumulations on the fixtures can be removed once a week by cutting a start with a putty knife, and then peeling it off like peelable booth coatings. The strips of masking canvas are freed of paint accumulations in the same way once every two or three months, depending on the need. Plastic enamels may now be obtained in all colors and shades for use on rubber weather stripping.

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WINTER *in the* SPRAY ROOM

By George A. Conrad
Finishing Consultant

Taking notice of the problem of keeping the finishing room and adjoining space warm while so much air is being drawn out of the heated building by exhaust fans in spray booths, etc.

TO THE FINISHING industry, the coming of winter is no joke. It is hard to conceive of any other business or production department of a factory where the heating and ventilating problem is more complicated or more costly. During summer and early autumn, windows and doors are open and Nature supplies enough warmth to give the heating equipment a much-needed rest. Exhaust fans work well, spray operators are not bothered with fumes, and usually no one worries about the time when all this will end.

Then winter comes; windows are closed and the heat is turned on. If the shop has been designed to meet the cold weather situation, everything may go along as smoothly as before. The only unpleasant reminder of winter will be the cost of heating the spray room, this being largely unavoidable.

Replacing Exhausted Air and Heating It Too

In the better designed shops, spray rooms are completely enclosed. Fresh air is pulled into the enclosure by fans or blowers which have a capacity slightly higher than that of the exhaust fans which blow the foul air out. Filters in the ducts (through which the air passes) and a slight pressure inside the spray enclosure tend to keep dust out of the spraying area; and heaters placed in the air ducts keep this area reasonably comfortable without robbing adjoining departments.

Efficient ventilating and heating systems are worth all they cost to any concern that can afford them. Of course, many companies must make out with something less perfect. The management in others, for some reason or other, holds back on investing in this equipment; meanwhile employes continue to endure discomfort and actual hazards throughout the winter.

What Happens in an Unbalanced Setup

In the unprepared shop, wierd things may happen when winter weather sets in. If the spraying area is enclosed and if doors and windows are closed, the supply of

air to the room and to the exhaust fans will be inadequate. As a result, the rate of air flow at the face of spray booths will be reduced and overspray will not be removed effectively. Naturally, this increases the explosion hazard. The booths foul up more rapidly, too.

The exhaust fans used in most spray systems are designed to operate in what is known as free air, that is, where there is no appreciable resistance to the free flow of air, either to or away from the fan blades. When resistance occurs, as in a closed room, the exhaust fan becomes, in effect, a pump. It is trying to pull a partial vacuum in the spray room. As a result, an additional load is put on the fan motor; it consumes more current and its useful life is shortened.

Pulling Air in From Adjoining Rooms

If the paint shop or finishing room is not enclosed, or if the doors to adjoining rooms in the plant are left open, the air needed to supply the spray booth exhaust fans will be drawn directly or indirectly from them. As air is withdrawn from the spray room, cold air from the outside is sucked into the building through every possible opening. This loss may not be as noticeable in the spray room itself as in other departments. In fact, the spray room, drawing warm air from adjoining rooms across its own area, may be reasonably comfortable; but employees working at benches or machines 100 yards away will be chilled by the wintry air rushing through open or partially open doors, poorly fitting windows, and cracks in walls, floors or ceiling. Some workmen, feeling the cold air coming in through every crevice, may try to remedy it by plugging up every place where air can enter the building. This certainly is not a proper solution. In fact, it only adds to trouble from other sources.

Since air is being removed, as when it is blown out of exhaust stacks at spray booths or elsewhere, it must be replaced from somewhere. It may even come down the exhaust stacks of the ovens, reversing the direction of intended circulation. Foul gases and solvents from the oven (if one is in operation) will not be removed but will be discharged into the room, producing a dangerous and unhealthy atmosphere. The intake of cold air will reduce the oven's efficiency and, if it is heated by gas, it may not function properly. If there is a furnace or heating stove in the vicinity (as in some primative paint room), the same thing may happen to it.

Uncontrolled Circulation; Cost of Heating Cold Air

In addition, there are a number of secondary effects which tend to complicate the problem. Even when more than adequate heat is available, the many disturbing influences of a finishing system may upset the planned distribution of heat. In addition to currents of air set in motion by the spray booth exhaust, heat escaping from ovens and cleaning equipment may set up air currents in opposition to normal air circulation. Where thermostats for the heating system are located nearby, these secondary air currents

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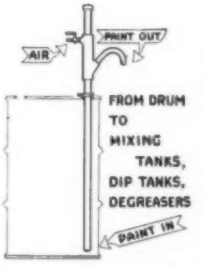

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may cause them to be unreliable. As a result, the place may alternate between being too warm and not warm enough.

Before discussing remedies for these conditions, it might be well to discuss one more unpleasant subject —cost. The immediate effect of winter on a finishing department heating system is the cost of heating the great volume of air which must replace that which is exhausted through the necessary ventilating stacks. This cost should be the most easily understood, but not always. As an example, suppose we take a day when the temperature outside is 30°F., and we wish to maintain a temperature of 70°F. inside the building. If there is a 22-in., 6-blade exhaust fan in the spray room, driven at a speed of 1700-rpm., it will be exhausting something like 5600-cu.ft. per minute of air at 70°F., which must be replaced by an equal volume of air from the outside at 30°F. To heat the 5600-cu.ft. of air from 30°F. to 70° F., will require something like 4300-BTU's every minute. To reduce this to terms of actual fuel, consult an experienced heating engineer. The result will surprise you.

Perhaps Speed of Exhaust Fans Is Too High

Several things can be done to remedy such conditions and to keep the cost of heating as low as possible. The first step is to check the speed of the exhaust fans. Many fans run too fast, especially in spray booths that have been altered or which are "home-made." The linear flow of air across the face of a spray booth should be from 115 to 185-ft. per minute, depending on the type and amount of spraying that is being done. However, local and underwriter's regulations should be checked first.

If the rate of exhaust is more than the requirements, the speed of the fan can be reduced safely by changing the size of pulleys on either or both the motor and the fan. Each exhaust fan should be independently controlled by a safety switch on the side of the booth and each operator should be instructed to shut off his fan whenever he is not spraying.

Enclose Spray Area and Supply Its Air Direct

The next step is to enclose the spraying area and to provide this space with an independent access to outside air. The enclosure need not be elaborate nor strictly air tight. It should be fire-resistant and it must comply with local regulations. The idea is to merely confine the suction of exhaust to a limited area. In addition to supplying plenty of free air to the spray room, the air ducts should be planned to pick up as much waste heat as possible on the way. I use the plural, "ducts," because several small ducts will transfer more heat with the air than a single big duct. Here again, it is not necessary to be elaborate; ordinary stove pipe will serve the purpose—just so long as the joints are reasonably tight. Black pipe will pick up more heat than galvanized ducts.

The total cross sectional area of supply duct openings to the spray room should be at least 1½ times larger than the total cross sectional area of the exhaust ducts. These supply ducts should be as long as

possible and their route should be planned to extend along near the ceiling where the air is warmer, especially above ovens, cleaning tanks, and other heated apparatus. Whether they follow the same or separate routes depends on the building layout. However, the ducts should not touch each other, or the ceiling, to obtain maximum heat pick-up.

It is a good plan to put a damper in each supply pipe, so the velocity of the air may be adjusted if the air in one pipe seems to be cold. These supply ducts may be run into a common manifold at the spray room enclosure and an air filter should be fitted into the manifold to clean the incoming air. The merits of such a system are that it supplies the spray room with clean warm air to relieve its own partial vacuum and it protects adjoining departments from these disturbing effects. The measure of success with which such a system will operate depends, of course, on keeping the doors of the spray enclosure closed as much as possible.

There are numerous ideas in reference to recirculation of exhaust air to recover part of the heat from same, but for the most part they are either impractical or too costly for the small amount of heat that may be salvaged. Most exhaust systems are planned to get the contaminated air out of the room and out of the building as soon as possible to save power and cleaning. Personally I prefer to have all exhaust ducts discharge to the outside at all times.

A milestone in the history of The Egyptian Lacquer Mfg. Co.—first shipment of finishing materials leaving Egyptian's new midwestern plant in Lafayette, Ind., early this summer.

Finishing Room Fire Hazards

I HAVE BEEN asked by several insurance inspectors to list fire hazards in paint departments. One thing I have found necessary to stress, as a fire hazard, is grease and paper on the walls of dry-type spray booths. The demand for peelable plastic coatings for spray booths has flooded the market with everything from vinyls to starch.

The majority of peelable coatings are very good, but I would like to call your attention to certain types and ask you to stop and consider the possible results. Is the peelable coating you are using soluble in water? If it will mix with water, is the plastisizer used in this coating glycerine? If it is glycerine, are you spraying lacquer? If you are spraying lacquer and if about 55% overspray is building up on the walls of your booth, remember: The solids in your lacquer are nitrocellulose or pyroxylin. May I ask, what is this chemical action between glycerine and solvent-fume-laden nitrocellulose or pyroxylin?—W. Beacham.

Bauer & Black Industrial Tape to Be Called "Polyken"

Effective Oct. 1, 1949, Bauer & Black's pressure-sensitive industrial adhesive tape line has been named "Polyken Industrial Tape."

From a slow start in 1939, with two products and one salesman, Bauer & Black's industrial tape sales grew through the thirties, mushroomed under military demand during the war years, and are now far in excess of the wartime peak.

Ultimate market potential for the products is so large it cannot be computed with any degree of accuracy, and the enlarged facilities of the new "Polyken" Industrial Tape Department reflect the company's faith in its future. The change was made to establish a clearer distinction between Bauer & Black's surgical dressings business and its Industrial Tape program, which utilizes entirely separate sales and distributor organizations.

"Polyken" Industrial Adhesive Tape is available in unlimited variety of combinations of backing and adhesive materials.

R. Earl Bell Now with the Schaefer Varnish Co.

R. Earl Bell, formerly foreman finisher with a chair company in Owensboro, Ky., and later color specialist with a manufacturer of wood finishing materials, joined The Schaefer Varnish Co. of Louisville, Ky., August 1, 1949.

According to Thomas F. McGuire, President of The Schaefer Varnish Co., Mr. Bell will assist Clarence L. Brown in the development of new stains and colors, and in special work with furniture manufacturers.

The Schaefer Varnish Co. is erecting a new building to be used exclusively for research and development work, as well as to serve as a control laboratory.

Wallace F. Bennett Will Address Convention of N. P. V. & L. A.

Wallace F. Bennett, President of the National Association of Manufacturers, will address the 61st Annual Convention of the National Paint, Varnish & Lacquer Association to be held in Atlantic City October 31, November 1 and 2.

Mr. Bennett will address the general session on Wednesday morning. His topic will be "Security and/or Freedom."

A graduate of the University of Utah, Mr. Bennett started his business career with the company he later was to head—the Bennett Glass and Paint Co. of Salt Lake City. His identity with the paint industry is further established by the fact that he is a former vice president of the National Paint, Varnish & Lacquer Association.

Wallace F. Bennett, President of N.A.M., to speak at convention of N.P.V.&L.A.

Mr. Bennett is also president of the Bennett Motor Co. of Salt Lake City, a member of the Board of Directors of the Utah Manufacturers Association and former president of the National Glass Distributors Association.

Headquarters for the convention will be the Chalfonte-Haddon Hall Hotel. Other nationally known speakers will be on the 3-day program. Matters of interest to manufacturers of industrial finishes and trade sales paints will be on the agenda. One session will be devoted to the national advertising program for 1950.

FINISHING Broom Handles

By H. Wagner
W. T. Adams Broom Co.

WE MANUFACTURE brooms that require long round handles in three different sizes. The household broom takes a 1-in. handle; the warehouse broom, subjected to heavier service, is fitted with a 1⅛-in. handle; toy brooms, being smaller and lighter, have a handle that is only ⅝-in. in diameter.

These handles are finished in various colors, and in a clear or natural finish. Different colors are often used to indicate the grade or quality of the broom, although some customers specify certain colors for reasons of their own.

The equipment we use for painting broom handles is fairly simple. We have a separate dip tank for the clear and for each color. These tanks are designed for vertical dipping of one handle at a time, by hand. Each tank consists of a sheet metal pipe 3-in. in diameter, with the bottom end closed. A funnel 16-in. in diameter is welded to the open end of the pipe. Length of the pipe depends upon the length of the handle to be painted.

The funnel-top dip tank is fastened in vertical position directly under a rubber squeegee, as shown in the accompanying picture. The rubber squeegee is clamped between two hollow metal washers with bolts and wing nuts.

The squeegee is a strip of rubber as thick as that used for the inner tubes of automobile tires. We use a strip of rubber about 5-in. wide and 30-in. long, and punch clean round holes in the rubber on 4-in. centers. These holes must be smaller than the diameter of the handle

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to be coated. For example, for the 5/8-in. diameter handle, we punch a 5/16 hole; for the 1-in. handle a 3/8-in. or 1/2-in. hole is required; and for the 1 1/8-in. handle a 9/16-in. hole is necessary to properly wipe off the excess coating material.

We use strips of rubber about 30-in. long so that eight or ten holes can be punched in one strip. Then, as one hole becomes worn or clogged with lacquer, the operator loosens the wing nuts and moves the squeegee forward to a clean hole. At the end of each dipping job, the rubber squeegee is washed in lacquer thinner.

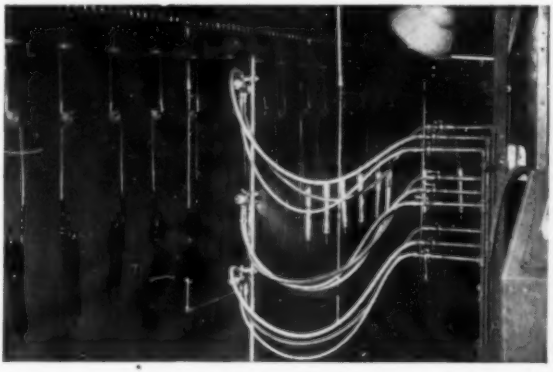
Our broom handles are given two coats of dipping lacquer. For the first coat, the lacquer is used as it comes from the container. Handles are dipped and racked to air dry for an hour; then they are again dipped into the lacquer with a small amount of thinner added. Better results are obtained by applying a thinned second coat. After the last coat air dries for two hours, the handles are ready to be assembled into brooms.

One operator working a full 8-hour day can dip 3000 handles 1-in. in diameter on the first coat, or 2000 of the same handles on the second coat. On the 5/8-in. handles he can do 1000 more than the above figures; on the 1 1/8-in. handles he will do 500 less.

American Polymer Corp. Has New Plant near Springfield, Ill.

Effective September 10, 1949, the American Polymer Corp. began production at its new plant near Springfield, Ill. The American Polymer Corp. specializes in designing polymeric resins for the paper, leather, textile, adhesive and protective coatings industry.

...from DIP to



Electro-Spray...

To keep paint out of the shock absorber mechanism and to improve working conditions, the Gabriel Company of Cleveland four years ago switched from dip to Electro-Spray.

It is seldom possible to change from dip to spray without increasing paint usage, even with the Ransburg process. But Gabriel did . . . Electro-Spray mileage was identical to their dip mileage! And they even expect to do 20% better with a new synthetic.

Today they are operating two Ransburg automatic units on two separate lines . . . with one-third less labor . . . and are enjoying consistent high quality.

If you have a production painting operation, it may pay to check with Ransburg—both quality-wise and economy-wise.

RANSBURG

RANSBURG ELECTRO-COATING CORP.
Indianapolis 7, Indiana

Hand Graining

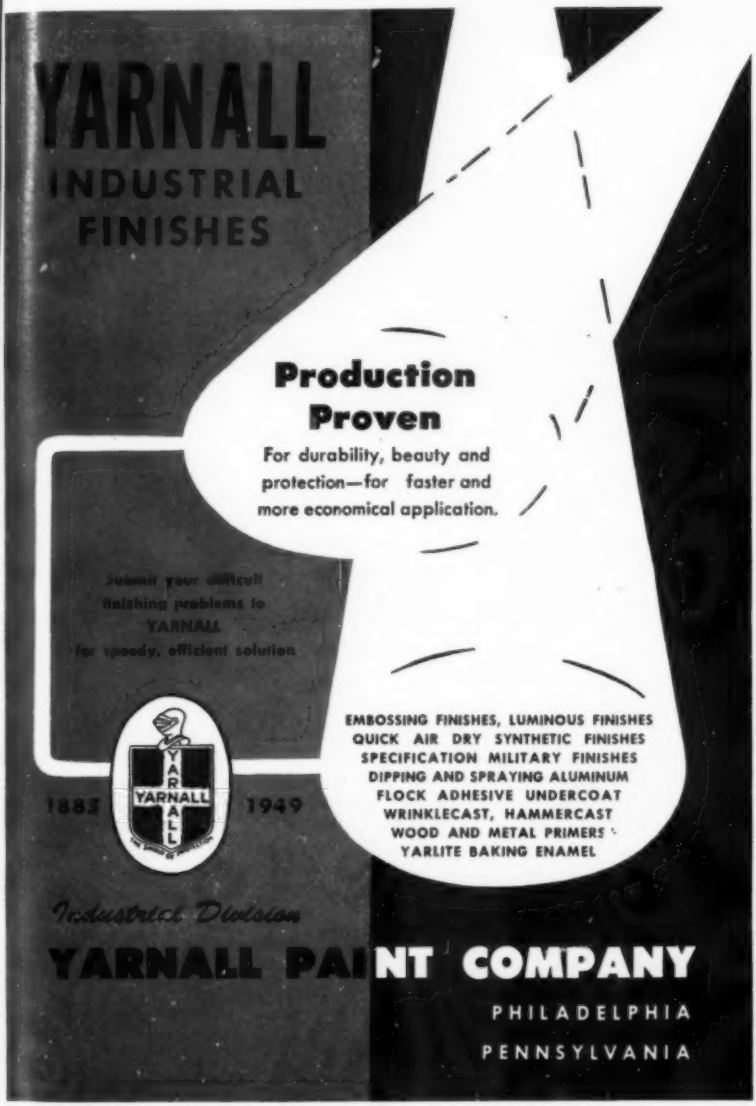
Brushes used by skilled artisans to hand grain metal surfaces on jobs where the faster, more accurate mechanical graining is, for some reason, either impossible or impractical. 1) Applicator, 2) Graining, 3) Cutting, 4) Blending, 5) Stipple and 6) Touch-up brushes.

By Miguel H. Tapia
Production Enameling Corp.

While economical production methods and equipment are now available for reproducing wood grain on metal surfaces, some jobs come along that call for expert hand graining by using brushes, as described here.

IN CUSTOM graining, as in all custom finishing, the usual rules of production and methods of procedure cannot always be followed. For instance, in the transfer of natural wood grain to metal products it may be that the size and shape of the piece will not permit use of a copper plate and roller. In other instances graining must be done on the job because it would be impossible or impractical to bring the work to the plant. It is in these cases—some of them at any rate—that one may have to resort to hand graining.

Frequently the surface to be grained must match—both in natural color and grain of wood—other metal products such as paneling, trim or furnishings which have been grained. This matching will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YARLITE BAKING ENAMEL
Industrial Division
YARNALL PAINT COMPANY
PHILADELPHIA
PENNSYLVANIA

determine the exact shade of both the ground coat and the graining ink to be used.

To do a skillful matching job it is advisable to try out the ground coat and graining ink on a small test panel, to make sure that the combination of colors will match the other work. Test panels should receive all of the coats the finished work will be given and the results should be checked in both daylight and the type of artificial light under which it will be seen when in service, so that it will match the other work.

The ground color is always the lightest shade of the wood to be simulated. However, when darker graining ink is applied the resulting color may differ widely from the pieces it will have to match.

Ground Color Is Applied First

When the colors have been decided upon the first operation is to apply a suitable ground color to the surface. This may be done by spraying or hand brushing, depending upon the size and shape of the area to be grained, and the quantity of pieces to be done. If the ground coat is enamel, it will have to dry from four to six hours at least, and preferably overnight. It is desirable that this enamel have a slight sheen, but not a high gloss.

Graining Brushes and How to Use Them

Over the clean dry ground-coated surface, graining ink is applied. Graining ink may be put on with an applicator brush—for instance like No. 1 in the picture at the beginning of this article—or it may be applied with a cheesecloth pad I have found it satisfactory to use a 12x16-in. metal panel to put the ink on, and then use this like an artist uses his palette.

The graining ink should be put on as a thin coat evenly distributed over the surface. While the ink is still wet a graining brush (No. 2 in picture) is used with long sweeps to spread the ink in long straight lines in the direction the grain is to run. Then, to produce a striped effect, for example in simulating slice-cut mahogany or walnut, brush No. 3 is used dry to wipe off some of the graining ink in long streaks or stripes running parallel to the grain direction. Skillful dry brushing allows the ground color to show through, thereby forming the light and dark colored stripes which appear in the natural wood.

Putting in Wood Pores; Blending the Grain

To produce the dark colored pores characteristic of genuine mahogany, and to a lesser degree in walnut, a stipple brush (like No. 5 in the picture) is dipped very lightly into graining ink on the metal panel or palette so that only the ends of the bristles receive ink; then it is lightly stippled on the light colored stripes. A small amount of ink and extremely light stippling are necessary to produce the realistic effect of natural wood pores.

Next, blending brush No. 4 is dipped lightly into the ink on the palette and wiped with a cloth. This is done to coat the bristles and yet not leave any free ink on them to be deposited on the grained surface. Now, with very light strokes

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in the grain direction, the grain design is blended to soften or diffuse the sharply defined grain lines and definite separation between the light and dark colored stripes. Skillful blending also eliminates that artificial appearance of the dark pore dots, some of which may be perfectly round globules. Light strokes of the blending brush will change these round globules into elongated ovals and make them less conspicious, thereby producing a more natural appearance.

Curly Grain, Knots and Birdseye Effects

To produce curly grain the No. 2 brush is used with the width of the brush in a horizontal position. The brush is drawn toward the operator, using a fair amount of pressure. Wherever a curly effect is desired the brush is given a slight twist. How often the brush is twisted and the amount of twist determines the extent of the curl.

Referring again to the illustration that shows brushes, brush No. 6 is a touch-up brush of average size. For diversified graining several sizes of touch-up brushes will be needed. Some are smaller than the one shown here; others are larger. They are used for touching up a grain design and simulating small knots, burls, cat's eyes, pitch pockets, and the eyes in birdseye maple.

Final Top Finish Is a Clear Protective Coat

After the grain design is completed it should be allowed to dry overnight. Then a protective coat of clear gloss or flat lacquer—whichever is required—is applied to the grained surface. Again the method of application depends upon the size and scope of the work.

It would be impossible to go into all of the details involved in the many intricacies of natural wood graining and explain how each design is accomplished. After long years of experience every grainer develops an individual method and technique which he can use most effectively. Hand graining, like any other art which is dependent upon a skillful touch and a practiced eye for form and color, is perfected through observation and practice.

Bert Zahn Joins Glidden Co.

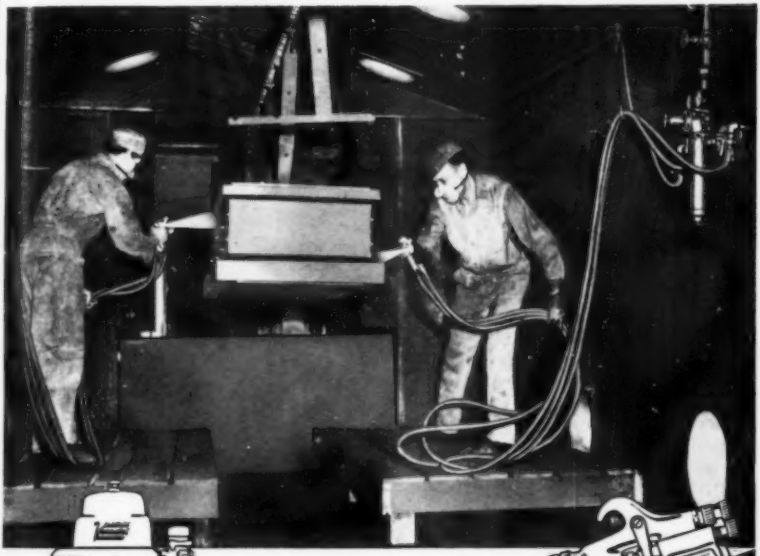
Establishment of a Graphic Arts and Sign Finishes Department in the Glidden Company's Paint & Varnish Division and appointment of Bert C. Zahn as manager of the new department are announced by A. D. Duncan, Glidden vice president.

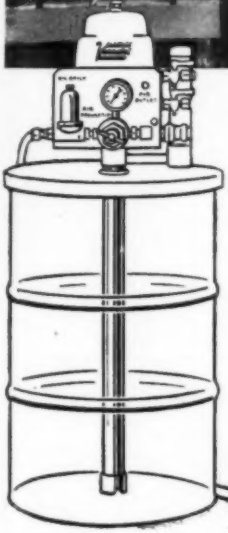
Bert Zahn, Manager of Graphic Arts and Sign Finishes Dept. of Glidden Company in Cleveland, Ohio.

A veteran graphic arts specialist, Mr. Zahn will organize and co-ordinate Glidden's sales efforts in this field, maintaining headquarters in Cleveland.

For the past two years Mr. Zahn has been associated with a manufacturer of finishing materials in New York, and for 12 years prior to that he managed the graphic arts department of a large manufacturer in Cleveland, Ohio. He is the author of texts on the graphic arts, including "Silk Screen Methods of Reproduction", which is widely used by schools, colleges and the United States government for training purposes. Mr. Zahn is general chairman of the Screen Process Printing Association's International Convention, which will be held in Cleveland in November.

Faster Finishing at Less Cost





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2 Hydraulic pressures deliver materials through as much as 1000 feet of hose or pipe.

3 Versatal eliminates "time-out" for material handling and transferring . . . increases output per man hour.

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STEWART WARNER

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Cleanliness in Finishing

By Rollin H. Wampler

IT IS IMPOSSIBLE to get a clean job of finishing in a room where dirt and dust are always floating about in the air and dropping onto freshly coated work. The atmosphere around many manufacturing plants is full of dirt and dust, and it is difficult to keep all of this dirt out of the finishing room. Complete air conditioning of the department, with a slight positive pressure inside, is the obvious and most effective solution, but this is costly and involves a major outlay of capital.

Lacking these facilities, there are other things that can be done to reduce the severity of the problem. Just plain good housekeeping is one of the best things that can be done to reduce the objectional condition. Dust allowed to accumulate on the floor, on window ledges, and on other places can be picked up by the slightest draft or by just walking past, and eventually some of it settles on any work in process.

Sweeping out the department every day and wetting down the floor with waste oil are helpful. Dusting down walls and ceilings with a dusting gun every month or so helps. Corners filled with odds and ends that are seldom used are dust catchers.

Overhead conveyor rails should be dusted down regularly to prevent the trolleys from dropping dirt onto the work. Ovens should be cleaned out regularly. Some finishers coat the insides of their ovens with non-drying oils to catch and hold any flying dust or dirt.

Insofar as it is possible, operations that are a source of dirt, such as dry sanding of undercoats, should be isolated from areas where finishes are applied. Blowing off accumulated dust or dirt from the work just before coating it—or better yet, going over it with a tack rag—will reduce the number of rejects due to dirty finishes.

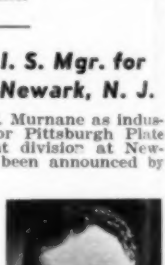
The use of fast-setting finishes such as lacquer will make for a cleaner finish because the coating is wet for only a short time. Straining enamels prior to use will take out small lumps of pigment that have not been properly crushed and mixed; otherwise these would make the finish dirty.

Some enamels and flat lacquers will "seed out" and produce a dirty finish if they are stored in the full heat of the summer sun for some time.

One finisher reduced his dirt problem by simply observing the prevailing wind each day. Closing the proper windows kept dirt-laden air from the cabinet shop from settling in the finishing department. Just keeping the door closed between the cabinet shop and finishing room helped considerably in one furniture plant.

J. T. Murnane, I. S. Mgr. for P. P. G. Co. at Newark, N. J.

Appointment of J. T. Murnane as industrial sales manager for Pittsburgh Plate Glass Company's paint division at Newark, New Jersey has been announced by the firm.



J. T. Murnane is Industrial Sales Manager for P.P.G. Co. at Newark, N. J.

Associated with Pittsburgh's paint division since 1925, Mr. Murnane has represented the firm in the Baltimore district until his present appointment.

Widely known in the lithographic industry, he is a member of the Litho Club of Baltimore. As industrial sales manager, Mr. Murnane succeeds the late C. A. Roebuck who served in the position for 24 years.

Space-saving Twin Meter accommodates two cars, cuts approximately in half the initial installation cost and the upkeep.

Finishing Time Cut 55%

LARGE PARKING METER MANUFACTURER* MORE THAN DOUBLES PRODUCTION BY USING *ALPO-33A HAMMER FINISH*

*Name on Request

PROBLEM: Using a finish with the required properties called for a 20-minute drying time. Problem was to speed up production by finding a quicker-drying finish, with equal or better properties.

SOLUTION: Manufacturer sent sample parking meter to our laboratories. Extensive tests on samples sprayed with our Alpo-33A Hammer Finish, showed better weather and abrasion resistance than finish formerly used —AND, *finish dried in 9 instead of 20 minutes* at 275° to 300° F.

TYPICAL APPLICATIONS: Automobile heaters, water heaters, appliances, photographic equipment and loud speaker systems.

Thousands of formulae on hand in our files to solve your finishing problems. Extensive laboratory facilities and large technical staff ready to develop and test finishes on your products. Write today for Technical Data Sheet on Alpo-33A, or send your products for finish specification and for testing.

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ENGINEERS OF FINE INDUSTRIAL FINISHES

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Baking Equipment FOR MODERN FINISHES

By Richard J. Ruff

President of Michigan Oven Co.*

COINCIDENTAL with the rapid developments in industrial finishes of all types, oven manufacturers have improved oven operating performance to give real precision control of the finish baking cycle. It is to the ultimate advantage of the mutual customers whom they serve that the paint manufacturer and the baking equipment manufacturer both recognize the possibilities and limitations existing with the several methods of finish baking now in general use.

What Baking Equipment Is Expected to Do

Fundamentally, baking equipment must preheat a coated product and then hold it uniformly at an elevated temperature for a specified curing time. Actually however, to meet industrial needs, much more must be expected of the modern production paint baking oven. The following features should be in all good baking equipment:

1) Heat the work to finish temperature within a short time in relation to the total baking time.

2) After attaining the baking temperature, maintain this heat uniformly with a minimum of manual operation.

3) Provide in its construction the necessary enclosure to confine the solvents liberated from the work and exhaust them to the outside of the building. In doing so sufficient replacement air to assure oxidation of the finishes is automatically provided.

4) The outer housing of the baking equipment or oven should include the necessary insulating qualities to conserve heat and at the same time permit production personnel to perform their functions near the equipment without undue discomfort.

5) For continuous equipment, cooling of the work following the bake is frequently desirable to permit more convenient handling of the parts for unloading and subsequent operations.

6) In locations where there is an appreciable amount of dust in the atmosphere, air filters should be provided to remove all dirt particles from fresh air entering the oven.

7) The equipment should include some flexibility to accommodate any anticipated change in products or baking cycle.

---

*Detroit, Michigan.

8) Selection of the equipment must be such as to maintain a healthy balance between initial cost and operating cost. Occasionally, special requirements must be met.

Radiation Baking by Infra-Red Ovens

When baking finishes by radiation, the major portion of the heat energy required to raise the temperature of the finished product is transmitted from the heat source to the product by infra-red rays. As is generally known, these rays follow the same physical laws as do light rays, having a wave length that extends beyond the visible spectrum. As in light, infra-red rays do not penetrate an opaque surface, but are either reflected or partially reflected. The portion of the rays absorbed is converted into heat energy and transmitted into the material by conduction.

As radiation baking is defined as a process where the major portion of the heat is transmitted from the source to the work by means of radiant energy, our discussion here will be limited to electric infra-red ovens.

Today's electric infra-red ovens show remarkable improvements over those installed some years ago. Construction practice may provide a gas tight, insulated enclosure, a well designed exhaust system to constantly purge the oven of any accumulation of volatiles, and dispersion-type reflectors to reduce localized heat concentrations.

Obviously, one of the merits of an infra-red oven is its ability, by high concentrations of energy, to bring the freshly painted work to the baking temperature in an extremely short time. The way in which the temperature of a radiated object varies with time depends in a complex manner on the absorbtivity of the radiated surface, ratio of exposed surface area to mass, thermal conductivity, radiant heat intensity, air temperature of the oven and other factors. The maximum or equilibrium temperature attained by the stock subjected to a set of specific heating conditions occurs when the rate of energy gained by all processes exactly equals all energy losses by all processes. Since these factors vary with different types and thicknesses of metal, or even with different pigments in paint, radiation baking is well adapted to those applications where there is no change in gauge of metal, type of metal, color of pigment, and where the ratio of surface area to mass is high.

Since radiation from the heaters reaches its maximum almost immediately—that is, as they are energized—there is no waiting period required for pre-heating the oven at the start of the day.

Radiation, as utilized in baking industrial finishes, has some specialized logical applications. Probably its greatest potential field is in those localities where electric power rates are low in comparison to other fuels and in plants (within a low power rate locality) that have a short-cycle baked finish on a uniform production product. To avoid misapplication, however, recognition must be given to certain inherent limitations of radiation baking. These are as follows:

1) Heat absorbtivity varies from 0.87 for a black enameled surface

down to 0.38 for white finishes, and considerably less for those paints having metallic lusters; consequently, it is impractical to attempt baking two colors at the same time.

2) The absorbtivity per square inch of surface area exposed to radiation is constant. This prevents approaching the same baking treatment on light-guage metal and castings or structural sections, when baked simultaneosly.

3) Control of the ultimate temperature of the coated surface is manual only, by manually adjusting the radiation intensity and conveyor speed through the infra-red oven. The temperature attained by the coated surface is dependent upon the air temperature surrounding the part, the absorbtivity, the convectional co-efficiental of heat transfer, the ratio of convection surface to radiation surface and the radiant intensity. A change in any one of these factors results in a change in the ultimate temperature attainable by the product.

4) Since the product being baked must be somewhat uniformly exposed to radiation, and since the rate of absorbtion (hence the ultimate heat of the work) is dependent on the angle of incidence with which the rays strike the surface, any method of obtaining a compact oven load by "nesting", involving shadowing, cannot be used.

5) Since there is no temperature control of the radiant heaters, the energy output during lags in production rate in a day's operation remains as high as during the peak production periods. Normally, radiant heaters are energized whenever the oven conveyor is running. Whether every conveyor hook is fully loaded, partially loaded or not loaded at all, the entire connected load energy is being utilized, since there is no means of automatically controlling the energy output in proportion to the oven conveyor load. I believe this is an important distinction between radiation and convection baking.

6) The heat source being close to the work, is subject to damage by careless operation or accidents.

Convection Type Ovens; Circulated Hot Air

Convection, as this expression is used in the baking of finishes, employs air as the medium for transferring heat from its source to the finished work. During the early periods of applying baked finishes, the heat source was located near the work and only gravitational forces caused the air to move from the source to the work. Since the early 1920's, the use of power-driven fans to produce forced convection currents in the oven has been improved to the present stage of development.

Today, while occasionally the heaters may be still located close to the work, the general practice is to place the heat source in a location remote from the oven work space and to utilize fans to recirculate the air to the work and return it for reheating. Distribution of recirculated air within the oven proper is accomplished by means of a system of supply ducts, distribution louvres and return ducts. The heat source may be electricity, gas, steam, or oil, the selection being dependent primarily upon available fuel and local fuel costs. *(Page 50)*

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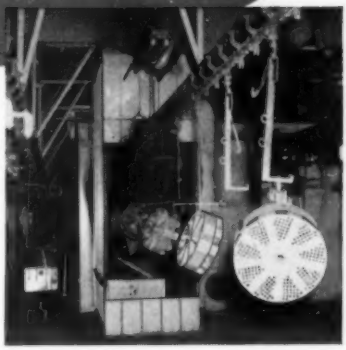
YOUR PRESENT OVEN with a BURDETT (RADIANT HEAT) GAS SYSTEM will save you 30% to 70% in HEAT PROCESSING!

Entirely new installations [illegible] get these Burdett-engineered heat processing savings!



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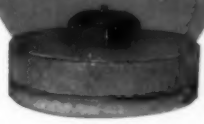

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Well known Midwest manufacturer now operates two complete Burdett Radiant Heat Gas Systems, each consisting of a dry-off oven, prime coat oven and finish coat oven. Production is 600 home laundries and 240 beverage vending machines per day. Temperatures used range from 400° F. for dry-off to 310° F. for 15 min. finish coat bake. Rapid temperature pick-up makes possible smaller ovens, conserving plant space for other uses!

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WRITE TODAY for complete Burdett-engineered recommendations. Include a blue print of your present equipment plus a full description of your requirements.

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MANUFACTURING COMPANY
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RADIANT HEAT GAS SYSTEMS

Temperatures in convection ovens are controlled automatically by a thermostat, with the thermostatic element located either in the supply air stream, or in the oven proper, consequently the heat consumption is proportional to the work load entering the oven. With no work entering the oven, fuel consumption is reduced. The ultimate temperature that a finished piece can attain is dependent only upon the oven air temperature.

Batch Type Ovens and Conveyorized Ovens

The forced convection oven is equally suitable for batch or continuous operation. In other words, it may be a compartment or booth type of oven into which loaded trays or portable racks are moved manually through doors, or it may be a tunnel type of oven through which a loaded conveyor travels. This is a particularly important feature when it is recognized that both the labor cost and investment are materially reduced if the production rate or incidental conditions warrants batch type methods in preference to continuous methods.

It is understood, of course, that in a batch loaded oven, because of the "mass effect" causing a momentary temperature drop as the batch enters the oven, the baking time is somewhat longer for the same type finish than in a continuous oven.

The high volume of recirculation promotes liberation of volatiles from the paint and assures the presence of oxygen close to the painted surface.

A well designed convection oven permits maximum work load concentrations. Frequently, "nesting" or other dense loading methods can be effectively utilized.

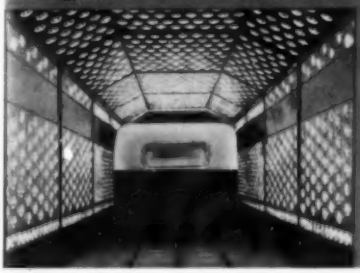
The baking of several different colors at one time can be accomplished without any essential difference in the heat treatment of each. When simultaneously baking light-guage and heavy sectional material, the light-guage metal will naturally come to baking temperature more quickly. However, the time differential between the two will be considerably less than with radiation baking since the heavy sectional matrial, being at a somewhat lower temperature during preheating, has a higher heat absorbtive rate per unit surface area as is needed to cause an acceleration in its rate of heating. Merely re-setting of the thermostat and oven conveyor speed produces a new baking cycle.

It can be seen therefore that convection baking equipment offers a wide range of applicability. Sufficient flexibility is provided in the design to permit baking any size, shape or thickness of part within the structural clearances of the oven. The cheapest fuel available can be utilized, and conversion from one fuel to another is possible. These features are usually recognized, but the inherent limitations should not be overlooked. Primarily, these are:

1) A time delay of 20 minutes to one-half hour may be required to obtain operating temperatures from a cold start for the usual (convection) paint baking oven. This necessitates that the oven be started in advance of the operating shift.

2) A longer time is usually required to bring the work to a paint baking temperature. Under production conditions on similar gauge

SIZE NO OBSTACLE for JENSEN Infra-Red Ovens



DEVELOPMENT by Jensen of huge infra-red ovens, specially designed to process finishes on big jobs, like the massive house trailer shown here, has been one of the most outstanding advances in the recent history of infra-red.

Size is no obstacle for Jensen. The efficient Jensen oven shown above bakes *all* exposed surfaces at *one time!*

Jensen "dual heat" Infra-Red Ovens are designed to industry's specific needs. Write us about YOUR problem today!

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In Finishing Production . . . the Future Belongs To Men Who *Plan* For It!

thickness of metal, this may be in the order of five minutes for convection heating as compared to two minutes for radiation heating.

The longer preheating time for the work does not always infer the utilization of greater factory floor space for convection heating. The required floor space is primarily dependent upon the ability, or lack of it, to secure a dense load factor with whatever type of heating method is used.

Two-Stage Baking . . . Preheat and Baking Zones

Two-stage baking, as its name implies, consists of a preheat zone and a baking zone, each independently regulated as to temperature and energy input. The purpose of the preheat zone is to impose a higher temperature gradient or differential on the entering work, thereby accelerating the heat absorbtion. The length of the preheat zone is determined by the time required for the work to reach normal operating temperature. This system has been used extensively in the metal decorating industry, reducing the heating-up time for tin plate from five or six minutes down to two minutes, with a corresponding reduction in oven length, or an increase in the total production.

In the two-stage system the high concentration of heat in the preheat zone can be accomplished by radiation, or by increasing the temperature and circulation of a convection system. In the baking zone, after the baking temperature has been attained, the effect of heat energy application is identical with either system of heating. The second stage, or baking zone, normally considered longer than the preheating zone, would logically be a convection type oven to take full advantage of the high degree of uniformity obtainable, and to permit utilizing the most economical fuel. Also, the larger oven surface area in the baking zone is then enclosed within highly effective insulated walls, reducing heat losses to the finishing department to a minimum.

Conclusions

Plant production experience, over the past eight or ten years, has seen the development and establishment of radiation heating for paint baking in the finishing industry.

The ability of providing rapid heating at the start of the bake is now fully recognized. Other characteristics are also more completely understood so that its applications to the industry can be closely estimated and properly utilized.

The wide adaptability and flexibility of convection baking, combined with recent developments in modern high volume recirculating systems to promote rapid heat transfer, assures us that the convection oven will continue as an excellent means of baking finishes in the future.

American Society of Body Engineers' Annual Convention

The Fourth Annual Technical Convention of the American Society of Body Engineers will be held at the Rackham Memorial Bldg., 100 Farnsworth Ave., Detroit 2, Mich., on Wednesday, Thursday and Friday, November 2, 3, and 4.

The program will include styling, engineering and production methods for automotive bodies and commercial vehicles.

For the Technical Sessions there will be 16 speakers who are all prominent in the automotive industry. A splendid program has been arranged for those who want to be informed of the future trends in this field.

If it's flat

. . . a Binks Automatic Reciprocating Spray Machine will cut your finishing costs and give you better finishes to boot . . . . .

Flat surfaces such as wallboard, linoleum, plywood, skins, imitation leather, tile, glass, shingles, range and refrigerator parts, textiles, blackboards, paper, are only a few of the many products that are finished fast and automatically by a Binks Automatic Reciprocating Spray Machine.

The Binks Automatic Reciprocating Spray Machine does all the work, never fatigues . . . the only manual job is to keep it supplied with work. Every piece is perfectly finished. Film thickness is minutely controlled. Materials are applied smoothly and evenly, without marks or laps. Product-appearance is enhanced and inspection and reject problems are reduced to the vanishing point.

When Binks Automatic Reciprocating Spray Machines are combined with Binks Dynaprecipitor water-wash spray booths, a pleasant paint-free atmosphere is maintained because all fumes and over-spray are whisked away through the water curtain.

Pigments, frit and solid material are quickly washed out and collected for reclamation. Fumes are exhausted into the outside atmosphere. With a Binks Dynaprecipitor Booth on the job, there is no industrial health problem, no fire or explosion hazard, and no expense for spray-booth cleanup.

What's your problem? Binks Automatic Reciprocating Spray Machine is fully adjustable and has been adapted for finishing many different kinds of flatware. Even if you consider yours a "special" problem, the chances are more than good that Binks engineers have dealt with a similar problem . . . can apply established automatic finishing methods that will produce better finishes for you . . . faster and for less money. Let a Binks engineer show you how.

"...Binks automatic finishing machines have revolutionized many large American industries..."

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Send now for free copy of our new Catalog-Data Book. Request your copy on your company letterhead.

A custom-made black lacquered piece of furniture with hand painted decorations.

Hand Decorated
BLACK LACQUER WORK

By Frederick E. Kotzian
*V. P. of Schmieg & Kotzian, Inc.**

This process includes sanding the bare wood, lacquer sealer, sand, tack rag wipe; two coats of black lacquer, each followed by drying and a steelwool rub; outlining a design; application of gold leaf; hand decorating and flowing on clear varnish to give "depth" to the finish.

MANY OF YOU have seen some of the fine Oriental trays, wall shelves and small what-nots done in black lacquer, with gold leaf and pigmented lacquer enamel decorations; also hand decorated black lacquered furniture.

Practically all of this was imported from China long before the war. Not too much is known about the materials or the Chinese methods of building up this finish and applying the decoration. Many pieces produced from 50 to 100 years ago are still in excellent condition; that is to say, the black background is still as black as it was five years after it was made, and the gold leafed design is still intact after many years of service. Perhaps some of the colored designs have faded slightly, but not enough that the original color cannot be detected.

Producing the Black Lacquered Surface

We simulate the Chinese black lacquer work successfully in the following manner: The wood surface is carefully sanded, after which a thin coat of clear low-solids lacquer is sprayed on. This sealer coat is allowed to dry about four hours. Then the surface is sanded thoroughly with No. 320 wet-or-dry sandpaper. After wiping and tack ragging, the piece receives two spray coats of high-solids black lacquer. Each coat is allowed to air dry overnight and the surface is steelwooled after each coat. *(to 58)*

*This company's products are not displayed or sold in retail stores, but are sold through decorators. Most of the furniture is custom made to order, often to special dimensions. The firm is listed as "Designers and Cabinet Makers," and is located at 521 East 71st St., in New York City.—Editor.

Hand Decorating and Gold Leafing

Next the design is transferred to the piece by means of white stencil powder pounced on through a perforated stencil. Those areas of the design that are to receive gold leaf are prepared first by applying a glue size containing a small amount of alcohol. This size is applied hot with a hand brush, *care being used to confine the size only to those surfaces to be leafed.*

After drying thoroughly these same areas receive a coat of slow-drying oil gold size. This coating air dries from 12 to 16 hours before it is tacky enough to receive the gold leaf. To obtain the proper contrast various shades of gold and silver leaf are applied with a gilder's tip and gently brushed out. The work is then ready for skewing, or removing with a soft brush the excess gold or silver leaf not adhered to the design. The piece is allowed to air dry overnight.

Next pigmented lacquer enamels are applied where called for and certain areas of the gold and silver leaf receive black, brown, blue and green India ink decorations. Some of these are applied with a ruling pen while others are put on with striping brushes. Again the work air dries overnight.

Building the Finish to Depth and Luster

Then from three to four coats of gum varnish are flowed on, allowing from 48 to 72 hours drying time between coats, depending upon drying conditions. It is these varnish coats that produce the build and depth of finish that simulates the ancient Chinese work.

The clearness of the varnish and the number of coats almost produce the illusion of a three dimensional design. In handling the piece one can feel the depth of finish as well as see it. For enduring beauty in this type of work only the best of materials should be used. Careful selection of wood, correct preparation and expert workmanship are necessary to produce fine black lacquer work.

Safeguard your spray booths

• Layers of inflammable paint come off more quickly if you have applied Wyandotte Spray Booth Coating first. Only a thin coating makes cleaning easier, faster, more economical.

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Robert Wagner is now direct factory representative of The Black Mfg. Co., Parkton, Maryland, in the Buffalo area and will cover all of western New York State. Mr. Wagner was formerly associated with Black & Decker.

running you ragged?

A FAR-FETCHED CONDITION? In a way. But plenty of production men feel as if they're running a race with today's costs.

If you're seeking relief from mounting manufacturing costs, you may find it profitable to take another l-o-n-g look at your finishing methods and materials. You'll find that finishing costs go far beyond the price per gallon of the finish itself . . . constitute a goodly portion of your total end cost.

Consider such factors as drying time, storage space, labor costs, percentage of rejects, and packaging operations. You can see where the *right* finish, *correctly* applied, can effect substantial savings.

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BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

Planning A CONVEYOR SETUP *for Finishing Furniture*

By A. R. DeBurgh
DeBurgh Conveyors

THE GENERAL purpose of a conveyor, of course, is transportation. However, a good conveyor is transportation *plus*. The *plus* is the number of special requirements of a finishing conveyor.

Let us consider a factory making an average of 50 bedroom suites consisting of five pieces—bed, vanity, chest, night stand and bench—or 250 pieces in eight hours. This would be a relatively small factory; but it is easy to convert our figures to a production of 75 or 100 or any number of suites a day from our example of 50 suites.

Typical Finishing Schedule on Mahogany or Walnut

Suppose now we consider a rather er simple finish for mahogany or walnut, as you will see that the better the finish the greater the need for a conveyor. About the minimum finish would be as follows: White sand, stain, dry, wash coat, dry, sand, fill; pad, wipe and pick; dry, seal, dry, sand, first coat of lacquer, dry, second coat of lacquer and dry.

Here are 16 operations (counting each drying as an operation) with a minimum of 32 handlings required (two handlings for each). Note that we have left out such standard processes as staining for color on mahogany, shading, glazing, wiping glaze, decorating, sanding lacquer, toning, color padding, third lacquer coat, drying again, and inspection, or approximately 11 additional operations common to a high class finish, or 22 additional handlings.

40,000 Handlings in a Five-Day Week

Going back to our original finish we had a total of 16 operations, each requiring a minimum of two handlings or 32 handlings for this simple finish. And we had 250 pieces as the 8-hour day production, so we multiply the 250 pieces by 32 and find these requirements in labor: 8000 handlings in an 8-hour day; 40,000 handlings in a 5-day week; 176,000 handlings in a 22-day work month and 3,112,000 handlings in a work year.

For our average high grade mahogany finish the total will be roughly 75% more or 3,696,000 handlings per year for this hypothetical small factory. Truly, this is a lot of handling by employees.

Excerpts from the author's address to the School of Wood Technology Class, University of Michigan, Extension Division, Grand Rapids, Mich., March 15, 1949; and to the Production and Cost Division of Southern Furniture Manufacturers' Association at Asheville, N. C., March 17.

In addition, there is a lot of pushing or shoving from station to station—usually hundreds of feet—through the finishing processes. This is an enormous amount of useless labor that does not add one penny to the value of the product.

Every handling, push or shove is a potential source of damage through bumping, dropping, scratching, finger smearing — creating a heavy annual loss in any factory. The lost labor and damage alone warrant the installation of a conveyor. However, let us continue and consider further.

Consider the Weight of Furniture in Process

Assume the average weights of the components of the 5-piece suite to be 75-lbs. for the chest, 75-lbs. for the vanity, 50 for the bed, 20 for the night stand and 10-lbs. for the bench. This gives us a total of 230-lbs. or an average of 46-lbs. per piece.

Now, we found that in our hypothetical factory there was a minimum of 8000 pieces handled per 8-hour day, the average weight being 46-lbs. so there were 368,000 lbs. of furniture in process being lifted or shoved or pushed from work station to work station each day in our small factory.

Think of it; 1,840,000 lbs. a week; 8,096,000-lbs. a month, 97,152,000 lbs. a year. Is it no little wonder that employees begin to tire long before rest, lunch, and quitting periods, with periodic slackening of efficiency the result?

Up to now, what I have said has all been about transportation—the tremendous amount of man-power energy expended and the need for a conveyor. Any executive will agree to the need for a conveyor in the modern furniture plant, so now I shall discuss the things we need to know to properly plan for a conveyor that will work satisfactorily.

Conveyor Setup Fitted to Products and Methods

Every conveyor installation must be "tailored" to the factory product.

1) We need an accurate floor plan.

2) We must consider the product from the standpoint of quality and determine at what maximum speed the conveyor should operate. Many plants would have turned out better products, and in many instances more production, with the same or less labor if this figure had been properly set. To arrive at production speed requires consultation with someone who is familiar with both conveyors and the technique of modern finishing, and it is advisable to secure the best engineer or consultant that is available.

3) We need the volume of production wanted to synchronize quality with volume to decide the conveyor features we need for our own job.

4) Next comes the size, length, height, width and weight of each item. This information is needed for several reasons, namely to determine the size of carriers, proper loading of work to secure the best production, sizes of openings to driers, and the structural strength of the conveyor.

5) We need, from the finishing materials supplier, correct data on flow-out times; forced drying and cooling times required for the various materials at predetermined

temperatures and proper percentage of relative humidity; the space required for such activities as sanding, wiping, decorating, etc.

6) We need to provide proper air exchanges in the drying room to comply with the National Board of Fire Underwriters regulations in accordance with the type and quality of finishing materials being dried.

I would like to state that controlled temperature and humidity in a properly constructed drying room, with proper air change provided, greatly reduces fire hazard.

Planning a Conveyor to Fit into the Factory

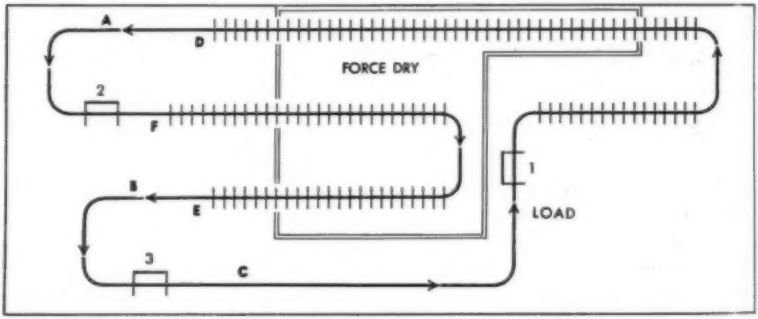
With the required data available we are ready to start with our layout. Major things to consider are:

1) Elevator openings, stairways, posts, water lines to the sprinkler system, ceiling height, lavatories, offices, clearance of hydrants, aisles, space ahead of the conveyor for storage of stock in the white and room at the unloading point for handling finished stock.

2) The layout should be compact; a really good one does not have long lines whereon nothing is being worked or processed.

3) Consideration should be given to the location of working stations for sanding and wiping of filler and glaze, and spray booths to effect efficient supervision.

Unfortunately, men responsible for some of the early furniture plant conveyor installations did not consider all of the factors just outlined and, as a result, the conveyor

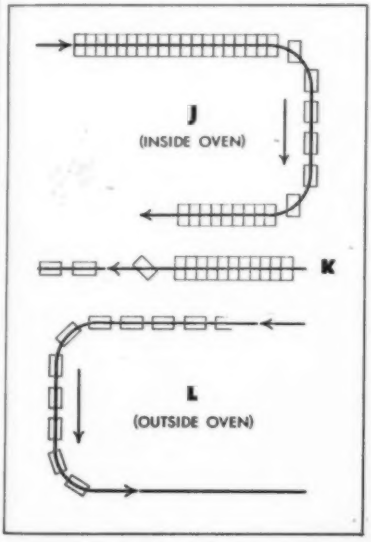


Floor plan of conveyor, drying room and spray booths. Spray booths are marked 1, 2 and 3. In addition there are work stations A, B and C. At points marked D and E, the pallets are automatically turned from crosswise (close pack) to lengthwise position and spaced a predetermined distance apart on the conveyor. At or near point F and beyond spray booth No. 1, pallets are automatically turned from lengthwise to crosswise (close pack) position on the conveyor. In the spray booths the pallets are easily turned manually.

Each piece of furniture may make anywhere from one to four trips (cycles) around this circuit, depending upon the number of operations required to complete the finishing job—or the conveyor can be made longer to pass through more spray booths and drying rooms if this is desirable. This is a Multi-Cycle Concept (patent pending) for the new DeBurgh conveyor, as drawn in the engineering department of George Koch Sons, Inc.

did not function properly. Also, some installations were really adaptations of conveyors that had been placed in automotive and other factories, almost solely for transportation; little thought was given to making them aids to increasing the efficiency of furniture finishing.

A finishing conveyor, as designed today, can be built for any type, volume or quality of product, and such installations have resulted in a better finish, the use of less floor space, and reductions in labor costs. You will recall the immense amount of labor loss we found in the finishing department that has no conveyor system.



Larger views of three different sections on furniture finishing conveyor.

Section J shows two turns inside drying room where the pallets are "close packed" except at the turns.

Section K shows just one point where pallets are turned from crosswise to lengthwise position on the conveyor.

Section L shows two turns outside the drying room where pallets continue to travel in lengthwise position and spaced at a predetermined distance apart.

Conveyor Timed to Suit All Operations Performed

A continuous powered or "timed" conveyor, properly planned and installed, is from 35% to 40% more efficient in reducing labor than a non-powered or gravity conveyor.

It is also more efficient than a belt or slat type conveyor that is powered between spray booths, as

As loaded pallets, in close pack formation (crosswise and edge to edge), leave drying room they are automatically turned to a position lengthwise of conveyor, and spaced a predetermined distance apart.

the operation on those types permit variation of timing, and therefore costs, merely by spacing work a slightly greater distance apart than normal. Further, where the conveyor consists of several sections instead of a continuous powered type, the slowest operator sets the production speed and therefore there can be no controlled cost.

Since furniture varies so greatly in size and shape it is necessary to be able to devote more or less time to individual items while in process

Each article is on a pallet which can be turned as it moves along at easy working height.

For High Production Sanding

Put the improved, lightweight, powerful air driven Mity-Midget to work for you. *Cut your sanding time 75%* . . . and improve your results. Special patented features make the Mity-Midget vibrationless, yet fast orbital action at 4000 to 6000 rpm assures a saving in finishing time. National has a complete line of sanding machines . . . both air driven and electric with orbital and straight-line actions. Apply production line methods to your finishing operations with a *National Sander.* Write today for details on the complete line, or see your local jobber.

The finest portable sander yet developed

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of work. Still we do not want to be compelled to give too much time to a smaller piece and not enough time to a large one, as is required on most timed conveyors with fixed centers.

We have successfully solved this problem, as for instance, at one plant that has a system such as I have in mind, the workmen are devoting the proper amount of time to the finishing of a simple item like a chair and the proper amount of time to a large 76-in. buffet which has nine drawers and four cabinets, without changing the conveyor chain speed. This feature is essential to a successful finishing conveyor.

This feature also makes for rhythm in the operations and, in turn, lightens the work for the operators. Workers do not feel that they are laboring under a "speed up" propposition, as each piece is worked within certain variable time limits and the operator decides just how much time to devote to each item for the best results.

Things to Consider When Selecting a Conveyor

In selecting a conveyor, I believe that experienced finishers prefer one that will permit the revolving of the pallet at work stations, as many pieces require finishing on all sides. It is obvious that better spraying can be performed if there are no obstructions between the operator and his work.

Another possible source of trouble is the presence of sander dust, overspray and various dirt accumulations on an overhead chain. Chain surge may cause some of these particles to fall on the nearly finished work. In one plant this condition caused some of the finished work to require touch-up operations after being removed as a finished product.

On the pallet type conveyor, if the pallets can be easily turned on the conveyor, operators at any station can get all sides in the best light and even ride the conveyor if necessary, to properly sand or wipe the tops of certain pieces.

Allowing for Operations That Call for Time and Skill

It may be desirable in some plants to be able to stop a piece of work temporarily for such operations as striping, applying decals, burning in, decorating, etc. Finishing conveyors have been developed to such a point that even on a timed conveyor regulated at, say, a minute and a half per station, additional work stations can be installed to permit operations where any required length of time may be devoted to an activity such as applying leather tops, decorating, rubbing, etc., and still run the balance of the production regularly at the minute and a half speed rate without disrupting the production flow. This may seem impossible but now it can be done and is being done on a timed conveyor.

Further new conveyor development permits automatic loading of pallets after final coat into a comparatively non-powered section or area for cooling in close-pack formation to conserve space (in some instances double decking) and then automatically returning the pallets to powered lines in proper sequence and in proper work position for the rubbing, trimming, and packing operations to follow. *(To page 7)*

IN STEP WITH THE TIMES

Industrial Finishes

that make the most of available raw materials to give you greatest durability, together with attractive appearance and economy.

• FOR APPLICATION BY ALL METHODS

JAMES B. DAY & CO., CHICAGO

Minimize Manual Handling Automatic Loading; Unloading

In a complete conveyor installation such as I have in mind, furniture is assembled, finished, cooled, rubbed, trimmed and packed for shipment with only one transfer of the pallets being required. There is no handling of the work from the machine parts stock to the shipping room. This is an answer to the elimination of a vast amount of nonproductive labor in industry. Furniture costs are high. To secure more business the furniture industry must eliminate waste labor and reduce cost so that more people can afford to buy good furniture.

A recent development of the floor-based pallet type conveyor, which has heretofore traveled from floor to floor on an incline, is an automatic elevator that unloads the pallet from a conveyor located on one floor and automatically loads the work on another conveyor properly synchronized on the floor above or below, thereby saving considerable space. Over a reasonable length of time, the cost of a conveyor can usually be met by labor savings.

Reduces Inventory of Stock in the White

An interesting fact was brought to light in a recent survey. The amount of inventory of stock in the white, because of a bottleneck in the finishing department, could be reduced sufficiently to pay the cost of a complete conveyor system. The capital transferred from inventory to conveyor was, of course, much safer if prices declined. In addition, the average time in the finishing room of five days was reduced to 24 hours, a further inventory reduction. There have been instances where, without the installation of a conveyor, production could not be increased without costly building expansion. Further, the investment in a conveyor can be depreciated, but wages paid for useless labor cannot.

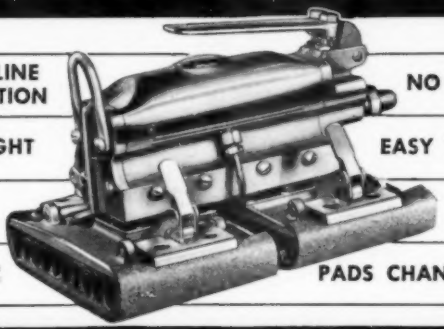
A question frequently asked is, "What does your conveyor cost per foot?" It is impossible to put a complete conveyorized finishing setup on a price per foot basis. We insist that the drying room and conveyor be installed as a complete unit, carefully and scientifically tailored to the job to be done. The required engineering and the number of special features used, any one or several of which may be needed—for example, the amount of "close-pack" which reduces drier size and floor space, the inclusion of double decking where necessary to conserve space, automatic elevators, optional draw-off stations, and other inherent features of the system—make it obvious why this is so.

In a recent installation, for example, space was at a premium in the finishing room; it was crammed to capacity and was blocking production progress in the mill and cabinet rooms. To install a stock type of transportation setup would require 2164-ft. of conveyor and much additional floor space which would necessitate expansion of existing buildings.

Engineers tailored a specialized conveyor to the existing facilities, provided for a substantial increase in production, and the total length of the conveyor was only 1040-ft.

(Continued on page 74)

TAKE OUT FATIGUE
. . . PUT PROFITS IN YOUR
SANDING OPERATIONS



STRAIGHT-LINE RECIPROCATION

NO VIBRATION

LIGHT WEIGHT

EASY TO HANDLE

POWERFUL

FAST

PNEUMATIC

PADS CHANGED EASILY

WITH A SUNDSTRAND PNEUMATIC SANDER

• Fatigue caused by continuous heavy vibration in sanders affects operator efficiency, slows production, cuts profits. Excess unnecessary sander vibration has been eliminated by Sundstrand's "opposed pad reciprocation"... two opposed pads reciprocating in a straight line, canceling end thrust, balancing moving parts . . . making it easy for operators to guide these lightweight machines freely, producing smooth surfaces without pressure marks. We will supply you with free detailed information about Sundstrand's "effortless" sanders. Write for bulletins I-F4 today.

DEMONSTRATIONS ON YOUR WORK — FREE!

In your own plant and on your own jobs see for yourself Sundstrand's pneumatic sanders in operation . . . we will arrange for a free "on-the-job" demonstration. Convince yourself. See the power and speed of Sundstrand sanders . . . the handling ease in producing fine finish on wood, metal, plastic or composition. Write today for a Sundstrand representative to come to your plant.

OVER 30 YEARS EXPERIENCE MANUFACTURING PNEUMATIC SANDERS

SUNDSTRAND MACHINE TOOL CO. ROCKFORD, ILLINOIS U.S.A.

SUNDSTRAND MACHINE TOOL CO.

PNEUMATIC MACHINE DIVISION

2562-G ELEVENTH STREET ROCKFORD, ILLINOIS, U. S. A.

Naturally, the price per foot of this shorter conveyor was higher but the total cost was less. In addition a great amount of floor space was saved as now there is room for a stock "bank" at the point where the conveyor is loaded.

Conveyor Removes Drudgery of Common Labor

Taking the common labor or drugery out of a factory job appeals to the worker. For instance, a spray man hired to work on a conveyor, feels that he is a specialist and is happier and more proud of his work than one who has to continually lift and move furniture. Intelligent workers realize that the better the factory is equipped to turn out the best product at the lowest price, the better job insurance they will have when market conditions become extremely competitive; and that such a factory is more likely to grow and increase the total number of workers.

In conclusion let me say that such a large percentage of the cost of a piece of furniture is in useless labor and I predict it is only a matter of time until all factories must put in a modern finishing system of the best type to remain competitive.

Public Demand Persists for MODERN

WOOD BLEACH

Secure Your Results

Make PERFECT
BLANCHIT-BLEACHED
Finishes

Use

BLANCHIT

Trade Mark Reg. U. S. Pat. Off.

THE ORIGINAL

A patented wood bleach which has been improved.

L. R. van ALLEN CO.

Patent Licensee

Chicago 54, Ill.

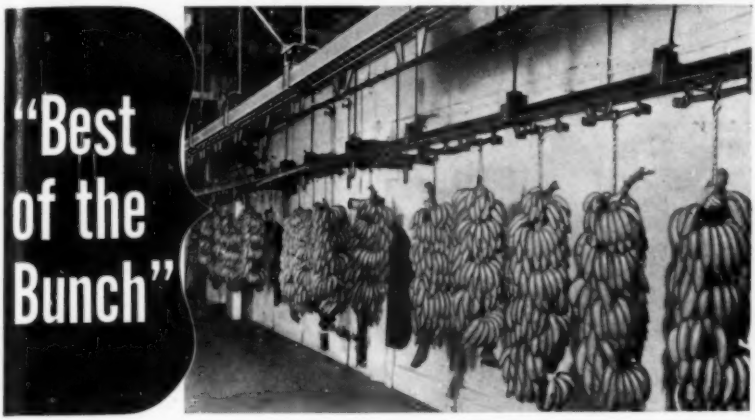
E. J. Cremer Now Manages Bink's Sales & Engineering in N. Y.

Mr. E. J. Cremer has been appointed Manager of the new Binks' Sales & Engineering office located in the Empire State Building, New York City. This office will serve as Binks' principal headquarters on the Atlantic Seaboard.

Mr. Cremer's duties include technical consultation, serving those who need help in matters pertaining to spray-painting equipment, finishing, or methods. Mr. Cremer is an experienced industrial engineer with a strong background in the field, gained through his work in the Binks Engineering Department & Industrial Sales Division. He is ready at all times to assist in the proper layout of finishing departments and in the selection of spray painting equipment to meet any specific purpose. His aim will be to help all users of spray painting equipment obtain better and faster finishes at lower costs. His services are available without obligation or cost.

E. J. Cremer has charge of new Sales & Engineering offices of Binks Mfg. Co., in N. Y. and the East.

The new Binks' office is located in Suite 4202, Empire State Building, 350 Fifth Avenue, New York 1, N.Y. The telephone number is LAckawanna 4-0755.



Richards-Wilcox Power-Driven Conveyors Boost Production and Profits

In today's highly competitive market, it is significant that the plant with Richards-Wilcox Conveying Equipment operates more efficiently, more profitably.

A Richards-Wilcox Conveyor for Every Job

R-W continuous power conveyors are serving production and processing lines in every imaginable industry . . . increasing efficiency, cutting costs. Let us prove to you how R-W Power-Driven Conveying Equipment can quickly step up efficiency and profits in your plant. Telephone, write, or wire the nearest office of Richards-Wilcox, world's largest makers of power conveyors and door hardware.

1880 RICHARDS WILCOX R&W AURORA 1949

Reg. U. S. Pat. Off.
OVER 69 YEARS

Richards-Wilcox Mfg. Co.
"A HANGER FOR ANY DOOR THAT SLIDES"
AURORA, ILLINOIS, U.S.A.

Heat Resistant Masking Tape

We noticed a very interesting article in the August 1949 issue of INDUSTRIAL FINISHING, entitled "Masking for Spraying," by George Conrad. In this article Mr. Conrad mentions heat-resisting tape for oven baking. As we have a paint baking oven and have been unsuccessful in obtaining a masking tape capable of withstanding the oven temperatures, we would appreciate either you or Mr. Conrad advising us of the names of the manufacturers that make the tape referred to in this article.—B Meter Co.

Try Minnesota Mining & Mfg. Co., (Adhesive Tape Division), 411 Piquette St., Detroit, Mich.—ED.

To Paint Bicycle Rims In Italy

Mr. J. Farkas: We notice your article about "Painting Bicycle Rims," as published in May 1949 issue of INDUSTRIAL FINISHING (starting on page 30). We would be glad to know if you are in a position to assist us with your advice in installing similar plants in Italian bicycle works. We are manufacturing, in our workshops, infra-red plants and the like, and your article has met our greatest interest.

It is evident that the electrostatic plant would have to be imported from the U.S.A., whereas all the rest could easily be built here according to your advices and, if necessary, general designs. It is almost unnecessary to state that your collaboration should be compensated by a percentage included in the price. The percentage should be indicated by yourself.

In connection with the problem we beg to address to you several questions:

1) Electrostatic spraying is much known by literature, but practical application is unknown in Italy . . .

2) Your article deals with painting the rims. But what's with all the other parts of the bicycle? To obtain a uniform aspect of the finished bicycle, the same paint application should occur on all parts. Is that so, and could you advise us also in that field?

3) From whom did you get the electrostatic equipment. We know as manufacturers the Ransburg Co., but at present Ransburg is not working on the continental European market . . . In case you yourself are not in position to accept our proposal, please be so kind as to bring us in contact with a firm specializing in this matter.—INFRAROT, Milan, Italy.

Special Graining Equipment

As a manufacturer of quality lines of steel hospital and institutional furniture, we have found INDUSTRIAL FINISHING very interesting and informative.

In April 1948 issue, page 104, you refer to an article published in February 1948, by Mr. William B. Leil on "Production Graining." Our issues of the publication do not go back that far, but perhaps you have reprints or back issues from which you can supply us a copy.

If you cannot supply reprints of this article, then perhaps you can help us with our problem. For some years, we have been hand-graining our metal cabinets to simulate wood grain. However, the trend in veneered work during the past few years has been to use more figured burl and crotch type of grains. These we know we could duplicate on dead flat panels from etched plates, using graining rolls, but once fabricated, the flat areas of our cabinets are very small, being broken up by edge forming, curves, etc., in the surface to be grained. Our desire therefore, is to obtain graining rolls or other tools to be used in conjunction with the various types of hair-bristle brushes to reproduce something that requires more than straight-grained brush work.

If you can help us in this problem, we will certainly appreciate it. We have, for some months, been trying to find a Canadian supplier of this type of equipment. We are also writing the Rapid Roller Co. of Chicago, whose name you show in connection with the inquiry in your April, 1948 issue.—METAL FABRICATORS, LTD.

In a letter, we are giving you the names and addresses of several suppliers of graining equipment. Also, we are sending you tear sheets of Mr. Leil's article. —ED.

To Write a Book on Finishing

For the past nine years I have enjoyed and have looked forward to receiving and reading INDUSTRIAL FINISHING Magazine. I have taught finishing here at The Stout Institute, Menomonie, Wisc., for seven years and have received great help in information regarding finishing.

In June 1948, I received my Masters degree in Industrial Education at the University of Minnesota and for my thesis

FLOCK

Short-cut fibres of all types used to produce effects of suede, felt, velvet, mohair, velour, carpet on any surface in an economical manner.

Let our 25 years experience be your guide to quality results at lowest possible cost.

Rayon Processing Co. of R. I., Inc.

PIONEER PRODUCERS OF SURFACE COATING FLOCKS

55 MOSHASSUCK STREET **PAWTUCKET, R. I.**

POLLAK PAINT CO.
715 Main St.
Buffalo, N. Y.

LAMBERT-NEW ENGLAND CO.
79 Sudbury St.
Boston, Mass.

H. R. MEININGER CO.
409 16th St.
Denver, Colo.

J. GORDON SMITH CO.
3901 Main St.
Dallas, Texas

I wrote on "Modern Finishing Materials and Methods." I used every book and periodical available as references.

I am now re-writing my thesis as a manuscript to be published as a text book. I am writing for your permission to use, as reference material, the various excellent writings in several issues of INDUSTRIAL FINISHING. Acknowledgement will be given them at the end of the respective chapters. I hope you will find it possible to extend or grant the permission. —George A. Soderberg, Asst. Prof.

Permission granted.—ED.

Where's Presstite Eng. Co.?

We are trying to contact Presstite Engineering Co., makers of Permagum and Plastic Putties. If you know their address, will you kindly inform us?—C. C.Co., Canada.

It's 3900 Chouteau Ave., St. Louis, Mo.

Who Supplies "Irilite"?

In August 1949 issue of INDUSTRIAL FINISHING, on page 81, you have an article about "Irilite," which produces irridescence when incorporated with various resins.

We are interested in this process but have not been able to locate the company that handles the product. Will you please let me have their address if it is available to you? — D.A.J.Co. (Simulated Pearl Necklaces)

The author of the paragraph about "Irilite" identifies the firm as Richelieu, Corp., New York, N.Y. In a letter we are also submitting the names of manufacturers of Pearl Essence finishes.—ED.

Silk Screen Printing

We are interested in subscribing to INDUSTRIAL FINISHING. We are particularly interested in the series of articles on a "Silk Screen Process for Industrial Users," by Mr. J. I. Beigeleisen. It is our understanding that this particular series started in the February, 1949 issue.

Please enter our subscription and, if possible, we would like to have those back issues featuring the "Silk Screen Process for Industrial Users."—S.D.Inc.

We are sending you copies of the three issues in which Mr. Beigeleisen's article appeared, (Feb., Mar. and April).

Perhaps you will be interested in the latest edition (eighth impression) of the 225-page illustrated book, "The Silk Screen Printing Process" by J. I. Beigeleisen and E. J. Busenbark. The authors are authorities on this work. This fine book is priced at only $4.00 and can be obtained through INDUSTRIAL FINISHING. —ED.

Can Supply Those Color Charts, Polish and Rubbing Grass

In the August issue, on page 86, we notice a request entitled, "Color Chart Wanted." We do not know of any one who has a more complete line of color cards than we have. For instance, we have liquid stains in three different grades, liquid oil stains, liquid alcohol stains, and liquid water stains, and a blended stain known as Match-O-Stain. We have never seen a filler color card outside of the ones we publish. We have a complete line of color cards for synthetic enamel, lacquer enamels for metal and wood, in both spray and brush. Also, color cards on Japan colors and oil colors. If you will notify your subscriber marked "R. Refinishing Shop," we would be pleased to contact them.

On page 84 you publish a letter entitled "Furniture Polish Wanted". This is initialed "C.C." We manufacture a product known as "Ooze". This is a cream polish which both cleans and polishes at the same time. We would be pleased to submit a sample to your subscriber.

Also, on page 86, we note that a customer wants sea-grass for rubbing. This request was issued by "C. Wood Products Co." Sea-grass is obsolete. It has deteriorated through a bacteria growth. We are now supplying furniture manufacturers a sisal or fiber which is a moss growth from the trees in the South. We will again be pleased to submit a sample of this product for the "C. Wood Products Co."—H. Behlen & Bros., Inc.

Bowling Pin Finishes

Could you give us any information on finishes for bowling pins, and the name of a paint or lacquer firm that supplies a suitable material for this work? The finish has to be tough to withstand the pounding it gets.—W.W.Co.

In a letter we are naming several firms that can supply finishing materials suitable for use on bowling pins.—ED.

Who Will Coat Heavy Wire in Coil Length?

We are manufacturing a part from 8-gauge bright basic wire and desire to have this part in decorative colors. However, in order to keep our production costs down, it is necessary that the 8-gauge wire be painted in coils the same as it is delivered from the steel mills. We plan to fabricate the part directly from the finished coils and will avoid the expensive technique of finishing the small fabricated part.

We would like the names of those firms that can decoratively color 8-gauge wire coils, with a surface that will stand working in a press and shipment of com-

Highlights on

HILO

Product Finishes

NU-SYNTOL

A Low Heat Quick Bake Synthetic Gloss White Enamel

NU-SYNTOL needs only a bake of 10 minutes at 250° F. and gives full high gloss white surface on smooth metal—a big help to production when oven capacity for longer bake is limited.

NU-SYNTOL is resistant to alkalies, cosmetics, gasoline, fruit juices, hair tonics, liquor, mineral spirits and machine oil.

Other popular Hilo Quality Products are—

ONE COAT HAMMERKRAFT—HAMMERED METAL EFFECT

TRANSLUX METALESQUE COATINGS

The ever popular Hilo Black Baking Japans—

Send for Hilo Bulletin No. 26 on Nu-Syntol, No. 25-OC Hammerkraft One Coat Air Dry or Bake, No. 23-B Trans-Lux Metalesque Coatings, No. 1 Hilo Black Baking Japans. Also, ask for free samples, or 5 gallons or more on approval, transportation paid.

HILO

HILO VARNISH CORPORATION

42-60 Stewart Avenue, Brooklyn 6, N. Y.

2420 Washburne Ave., Chicago 8, Ill. • Park Sq. Bldg. Boston 16, Mass.

pleted parts in bulk. In so far as finish is concerned, a finish comparable to colors produced in anodized aluminum is desirable.

We understand that the Seneca Wire Works does work of this nature but they do not do the larger size diameter that we desire.—P.C.Co.

Who is in position to handle this or similar jobs?—ED.

Rollin H. Wampler's Articles

In my search for information regarding quick-drying fillers I was referred to Mr. Rollin H. Wampler. Mr. Wampler advises that in one of your 1947 summer issues he wrote an article entitled, "Thirty-Minute Wood Fillers," and suggested that you could possibly furnish me with a tear sheet of this article. If that is at all possible, I would certainly be glad to reimburse you for whatever expense you may incur in this regard.—W.H.R.

I have followed all articles I find in your magazine that are written by Rollin H. Wampler. He talks ordinary language and common horse sense—not in technical terms. Can you tell me the names or titles of any books he has written and where to acquire them?—C.H.S.

Glad to learn that you like Mr. Wampler's articles. Yes, he has written an excellent new book that covers all types of finishing materials, different factory methods of applying and drying them (spraying, dipping, flow coating, roller coating, tumbling, centrifugal or whirl finishing, etc.), conveyor setups, finishing methods and processes for various products, testing finishes, etc. It contains many interesting illustrations in its 450 pages 5½x8½-in. The book is durably bound between stiff brown covers lettered in gold. It isn't a cheap book. It sells for $8.50, but no one interested in modern production finishing will part with a copy of the book once he has bought it. The book can be obtained through INDUSTRIAL FINISHING. Money back if not satisfied.—ED.

Commercial Finishing Firms

We will appreciate it if you will advise us of the names and locations of industrial finishing companies; that is, companies that will apply the finish to machined castings and other various types of parts and sub-assemblies.

Due to handling and high cost of freight, we will probably be restricted to companies within an area of 75 miles of our location (Benton Harbor, Mich).—P.R.Co.

Most of these concerns are in large cities like Chicago, Detroit and Cleveland, although we notice one in Ann Arbor, Mich. In a letter, we are giving names and addresses of a few of those we happen to know about.—ED.

Can Supply Non-Slip Paint

Referring to the inquiries in "Letters from Readers" on page 84 of August issue, this is to advise that our company manufactured many thousand gallons of "Non-Slip" Deck Paint for the U. S. Navy during the war. We would appreciate your giving us the names of the firms who inquired for this material.—PERFECTION PAINT & COLOR CO.

We manufacture such a material which is used on the decks of ships, oil barges, cat walks, etc. This is used extensively on the off-short drilling rigs and we believe it would meet the requirements of "D.&R.G.R.R." and "S. Mop Wringer Co." We would be pleased to supply samples of this material to them. This is a vinyl resin 3-coat system consisting of primer, non-skid coat and top coat.—PRODUCTS-RESEARCH-SERVICE, INC.

In reading through August 1949 issue, we note that several people are interested in a non-slip deck paint. We have a considerable stock of this paint and would appreciate the names and addresses of the people interested, so that we may contact them.—HOGAN PAINT & CHEMICAL CORP.

Knife Coating Engineers

Referring to page 86 of September 1949 issue of INDUSTRIAL FINISHING, kindly furnish me the names and addresses of the two engineers, experts in knife coating technique and machines.—S.H.B.

Information supplied.—ED.

Wood Putty, "Sparkle"

We are searching for a wood putty that has the trade name of "Sparkle" We do not know who manufactures this product and have searched all available books on products and manufacturers, without finding any mention of "Sparkle".—M. Furn. Co.

Do you happen to have in mind a product called "Sparkel" which is a patching and leveling compound made and sold by H. Behlen & Bros., Inc., 10-12 Christopher St., New York 14, N.Y.?

Other wood putties are advertised in recent issues of INDUSTRIAL FINISHING.—ED.

Wet Rubbing Machines

I would appreciate information on companies making machines that can be used for wet rubbing table and desk tops.—O.E.W.

Portable sanders, electric or air driven, as advertised in this magazine, will do the job satisfactorily.—ED.

FOR THE BEST IN FINISH,
YOU NEED THAT FINISHING TOUCH.
AND THE FINISING TOUCH TO YOUR
FINISHING PROCESS IS THE

NEW P-B FLEXIBLE SYSTEM . . .

No Conveying System You Have Seen
Will Equal It In Savings of Investment,
Process Costs or Space.

Want Facts and Figures?
Reach for the Phone
or Write

ENGINEERS • MACHINISTS • STEEL FABRICATORS • ERECTORS

PALMER-BEE Company

DETROIT 12, MICHIGAN

Blisters Burst and Leave Rings

We have trouble with white synthetic enamels which we thin with VM&P naphtha. Our finish shows pinholing or very small blisters which burst and then leave unsightly rings.

This material is sprayed and undercoats are air dried. They do not clog sandpaper, and sand clean; they dry overnight and longer.

We have experienced this trouble with several different makes of paint. We have an air trap and two air filters [in our compressed air line] but trouble still shows up.

The finish is on hardwood—beech, gum and maple. Can you enlighten us on our trouble?—C. Cabinet Co.

Your trouble can be caused by a number of things. I am wondering if you thin the enamel enough. If white synthetic enamel is sprayed at a little too heavy viscosity, it will not flow out well enough for bubbles to burst and flow out smoothly.

I suggest that you try a slower solvent, such as mineral spirits. This comes under various trade names such as Varsol, Sunoco Spirits, etc.

Another suggestion is that you try a stronger solvent, like xylol, in place of VM&P naphtha. A stronger solvent will reduce the viscosity of synthetic enamels faster than naphtha, and this may eliminate your trouble.

Of course, too little or too much air pressure when the material is sprayed can cause pinholing or bubbling. I suggest you experiment along this line, because it might stop your trouble.—R. H. WAMPLER.

Penetrating Coating for Cement Products

We are interested in a resin or plastic product which would be suitable for applying to Portland cement products or concrete, in a very thin transparent coating, and which would be durable when exposed to the weather. Any information you give us will be greatly appreciated.—S.Art Stone Co.

We are sending you a gallon sample of "Drigard" Type "A", which we believe will answer your purpose. For some matrices, "Drigard" is heavied up somewhat to form more of a surface coating, but we believe the type sent you is what you desire.

We submit the following instructions for its use:

1) The surfaces of the matrix should be thoroughly dry before applying this material.

2) Apply it liberally by brush, with some patience, allowing the liquid to penetrate the surface.

3) This thin liquid is not intended as a surface coating, but over-saturation will provide not only penetration but also some surface.

4) Allow 48 hours drying time before using the treated matrix. In this connection the solvent evaporates, depositing the "Drigard" ingredients in the pores.

With further regard to your precast products (made of "Marbletexture" and "granitexture") may we suggest — where no polishing exists

A UNITED EXCLUSIVE!

VELVA-TŌN

FASTUFF

SYNTHETIC WITH LACQUER SPEED

HANDLE IN 15 MINUTES! PACK IN 2 HOURS!

Yes, VELVA-TON FASTUFF is ready, tack-free, for handling in only 15 minutes, with a tough, flexible finish that maintains superior color under difficult conditions. Available in white, black, and all other colors for wood or metal.

UNITED LACQUER MFG. CORP.

LACQUERS
THINNERS
SYNTHETICS
METALLIZED FINISHES
SPECIAL COATINGS

Write United's research dept. for the formula that meets your particular needs, and receive a generous working sample, free.

UNITED
LACQUER MFG. CORP.
LINDEN, N. J. EVERETT, MASS.

and after the cement is properly cured —that you apply Drigard to the surfaces, using a wiping cloth, as the granite and other aggregate will absorb the product more slowly than the cement. If no wiping cloth is used, a buffer will bring up some polish. After a week, it is suggested—as a test—to use a fine piece of sandpaper on a small area, and after the stone surfaces and cement surfaces have been slightly removed— to a depth of say 1/64th of an inch—apply water to prove the penetration at this point. The application of "Drigard" preserves the precast products, and is used to a great extent in cemetries—on tombstones and mausoleums—as a prevention against erosion, spalling, frost, etc.—DRIGARD PRODUCTS CORP.

Bleached Finish with White Pores

We are having considerable difficulty with our bleached finishes and would appreciate your advice. We operate a custom shop and in the course of our business have to match practically all types of wood finishes.

Our greatest difficulty occurs when the finish calls for the pores to show up extremely white. We have had no success wih this type of finish.—D.L.R.

Most bleached finishes require white or a very light colored pore. This is usually provided by using a filler that is white or some natural shade. For best results the wood should be wash-coated with shellac or lacquer (5 to 10% solids) first. The use of white filler involves no special problems.

It might be mentioned, in passing, that the color of the pores is usually kept lighter if the filler is allowed to dry thoroughly before it is sealed over. For best retention of this light color in the pores, some finishing specialists prefer to spray a thin coat of shellac over the filler before sealing and lacquering. Otherwise the sealer penetrates the filler to some extent and darkens it slightly in the normal method of operation. The use of a shellac wash-coat helps to prevent this penetration of the sealer.

The semi-opaque "French" and other colors that are obtained with a colored toner applied directly on the wood prior to filling, usually require a white or light colored filler. The color will hold light better in these systems if a shellac-base wash-coat is applied over the toner before filling. However, this treatment may involve some loss of transparency which, in some cases, is undesirable.—R. H. WAMPLER.

When extreme white pore filling is demanded, the first requisite, is clear uniform bleaching, where real bleaching is done, and selected clear woods where job is done without bleaching.

A wash coat is a must in this finish. The use of a sealer wash coat prevents the white filler from adhering to and smearing the hard part of the wood and allows a clean wipe-off of surplus filler.

A nearly water white clear sealer is also called for here; and the same type of top coat finish. The sealer and lacquer coats must not turn the filler or bleached wood yellow when it dries. This is probably one of Mr. D.L.R.'s troubles, as this seems to be the usual cause in this type of complaint.

Another cause is that the usual type of white filler is not white enough for this special work. There are several shades of white filler on the market but most of them are not designed for extreme whiteness. In fact any filler that contains oils and driers has a tendency to yellow slightly.

Mr. D. L. R. can obtain an extremely white filler from his supplier or from any of INDUSTRIAL FINISHING's advertisers who specialize in wood fin-

NEW PERIOD
Production Finishes
BAKING ENAMELS
LACQUERS SHELLAC
ENAMELS FILLERS
SEALERS SUPPLIES
PRIMERS STAINS
SYNTHETICS VARNISHES
ALL YOUR FINISHING NEEDS UNDER ONE ROOF
FILLERS and STAINS
Top Quality
Unequaled Color— Matching Service
SEALERS
Provides excellent body
Fast drying
Easily sanded
LACQUERS
Clear & Semi-Gloss
Uniform, dependable
Suitable for coating almost any surface
More coverage, unusual mileage
Cuts costs, maintains quality
LACQUER ENAMELS
Flat & Gloss
Wide variety of matched colors and shades
Adaptable to wide variety of industries
SYNTHETIC ENAMELS
Durable, trouble-free
For fast production
Built to exacting requirements
AT YOUR SERVICE!
The New York Woodfinishers laboratory is at your service to help find the right finish for your particular job.
Write for 5 gallon working sample at drum price
MANUFACTURERS OF
FINE PRODUCTION FINISHES
NEW PERIOD
Production Finishes
ESTABLISHED 1917
NEW YORK WOODFINISHERS' Supply Co.
109 IMLAY STREET BROOKLYN, N. Y.

HOW . . .

Cellusuede FLOCK SOLVED A PROBLEM

CLOTHES HAMPERS NEEDED A VELVETY INTERIOR SURFACE

SOLUTION: The use of Cellusuede Rayon Flock proved most valuable in this application. Hamper interiors became virtually snag-proof, adequate ventilation was not disturbed, interior surfaces became extremely appealing. Cost per unit was very low, yet sales value increased appreciably.

How About You?

If soft-to-touch interior or exterior surfaces are essential to your product's utility and beauty . . . think of Cellusuede Flock. It's the easily applied, economical coating of 1001 uses.

Send for Samples, Prices and Descriptive Folder.

Cellusuede Products, Inc.
ROCKFORD, ILLINOIS

ishing materials. I think that when he uses a water white clear sealer wash coat before filling; then the extra white filler; same sealer material as sealer over filler; sands the surface well; and follows with two coats of water white clear lacquer as a top coat, he will have overcome his difficulty. Do not try to overload the lacquer on your furniture; just spray normal wet coats evenly and you will have no more trouble.—ED HOGSTROM.

Selection of Woods for Light Finishes

By H. W. Chester

TIME WAS when the furniture manufacturer didn't pay too much attention to the veneers used on wood furniture. This was particularly true as to the color of the woods. In those days most of the furniture finishes were dark, therefore the real color of the wood was not revealed in the finished product.

For several years now the trend has been toward lighter colored finishes on wood furniture. Naturally this makes uniformly light-colored and finely figured and striped veneers desirable if not a necessity. The lighter finishes, many of them natural, reveal the true beauty and character of the wood. Today, if the finished product is to portray beauty of wood and uniformity of color, then the wood must be selected for this purpose, as there is very little staining done. This is particularly true of light walnut, grey walnut and blond finishes.

For instance, a dresser with a light walnut top, dark walnut front and reddish colored walnut ends certainly doesn't look right, but that may be the result if the veneers are not carefully selected for color.

Veneers should be matched, as nearly as possible, in figure of grain. For

instance, in a piece of pin-striped walnut furniture, the top, front and ends should have the same figure insofar as it is possible to match them.

Since mahogany is generally finished darker than walnut (except bleached mahogany) a slight variation in color doesn't make as much difference as in light walnut and blond finished woods. Most mahogany finishes today are much lighter in color than those of former years, so it is important that the color of the raw wood be reasonably uniform. Light finishes on mahogany do require careful selection, as to the figure of the wood, so that all of the beauty and character of the wood will be revealed in the finished product.

On some of the cheaper grades of furniture, finishers use an enamel-tinted equalizer to uniform the various shades of veneer. This helps some, but it tends to cover up the wood grain and thereby hide its beauty.

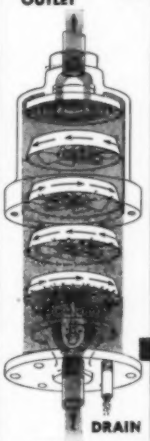
Some finishers still bleach dark woods to make them match the lighter woods in color. This method is both slow and expensive for modern conveyorized furniture factory setups. While the price of veneers that are reasonably uniform in figure of grain and color will be somewhat higher, I believe the manufacturer of wood furniture will be ahead in buying this better grade material—especially if he values the added beauty and richness in his finished product.

Rubber-like plastic materials, which are said to possess many chemical properties lacking in both natural and synthetic rubbers, have been developed recently by the Organic Coatings Division of United Chromium, Inc. These new materials are known as Unichrome Plastisol and Organsol compounds.

Let The ARIDIFIER

CLEAN YOUR AIR AND GAS LINES

Removes 92% Oil, Water and Dirt



The Aridifier gives you positive removal of oil, moisture and other foreign matter from air or gas lines. With paints and lacquers it often eliminates bloom and imperfections in finish. It provides dry lines for ceramics, sand blasting, for air cleaning, etc. Wherever the need exists for dry clean air or gas, the Aridifier delivers the goods. Easily installed. No maintenance problem. 10 models available. Capacity range: As low as 7 CFM to 17,000 CFM.

BULLETIN 147 Tells The Complete Story

HOW IT WORKS Exploded view shows how four multi blade rotors revolve at high speed in opposite directions under impact of air movement through non-aligned rotor spaces. Moisture, dirt and other foreign matter which collect on rotor blades are thrown out of air stream by centrifugal force to side of housing, and pass into drain.

Made By The Manufacturers of Logan Lathes and Shapers.

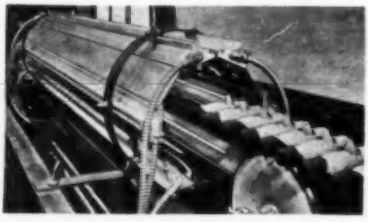
Logan ENGINEERING CO.

4915 W. LAWRENCE AVE., CHICAGO 30, ILL.

Electric Infra-Red Oven Has Heat Control

A full day's production capacity of wash-dipped sand cores is now being turned out in three hours by the Milwaukee Flush Valve Co., Milwaukee, Wisc., with a new electric infra-red oven. The oven consists of six all-metal Chromalox Radiant Heaters mounted at angles to form a circular drying tunnel. The temperature of the entire oven is regulated by a variable input controller.

Baked cores for a wide variety of brass plumbing fixtures are dipped in a wash solution to provide a smoother finished surface, and to coat exposed core wires which were formerly hand-brushed. Breakage is now minimized, as cores are dry in approximately two minutes after dipping.



Close-up view shows six 3-kw. Cromalox infra-red heaters assembled to form tunnel around narrow conveyor.

Accurate temperature control prevents burning or under-baking of the cores. The input controller permits very close control and exact duplication of temperatures which are logged for various items passing through the oven. The entire oven unit may be turned off when not actually in use since it can be brought up to operating temperature again in two minutes.

The two top heaters are hinged together with the standard tongue-and-groove joint, and the remaining four are spaced evenly around the conveyor. Polished aluminum reflector sheets between the heaters intensify radiation and increase the efficiency of the oven. Two steel bands, to which the heaters are fastened by sliding stud bolts, are the only accessories needed to form the oven.

"Flawmaster" and "Bonding Agent"

"Flawmaster" is a thermosetting compound used to reclaim metal parts and castings otherwise rejected for surface flaws, sand pitting, foundry gas holes, faulty machine surfaces, taps and many other flaws too numerous to mention, matching the metal to which it is manually applied. "Flawmaster" is machineable, chemically inert, and is resistant to a wide range of temperatures.

"Bonding Agent R-313" is an excellent medium for manually bonding dissimilar and similar materials such as glass, plastics, neoprene, leather goods, etc., to metals, and ferrous to non-ferrous metals, etc. It meets the highest industrial requirements for pressure, chemical and temperature resistance.

One advantage offered by these two Western Sealant products exists in the simplicity of application at a

SPRUANCE QUALITY

SINCE 1906

Wood Lacquer for the Furniture Industry, in Gloss - Semi-Gloss - Flat

This company has always featured a highly specialized and complete line for the furniture industry. Among these specialties are:-

LACQUERS of high quality – which may be rubbed – having excellent build – will stand cold check and resist alcohol. Their uniformity and hard finish – have been proven in actual production for many years.

SEALERS–(two types)–one that sands readily in a half hour. It's tough – time saving – satisfactory. The other – is of highest quality – has maximum toughness – holds out the finish, but cannot be sanded for an hour. They are adapted to your preference–your production methods.

Rely on The GILBERT quality for high grade lasting **SPRUANCE COMPANY durable finish . . . beauty.**

Our research and technical staffs are at your disposal.
Inquiries Invited.

The Gilbert Spruance Company

Richmond and Tioga Streets
Philadelphia 34, Pennsylvania

nominal cost. Both products, "Flawmaster" and "Bonding Agent R-313" are conveniently packed in kits ready for immediate manual application.

Descriptive literature may be secured from Western Sealant, Inc., 9042 Culver Blvd., Culver City, Calif.

"Surprep" for Aluminum, Steel and Zinc Surfaces

Enthone, Inc., 442 Elm St., Dept. IF, New Haven, Conn., announces the development of a new type surface preparational material called "Surprep" for cleaning surfaces prior to organic finishing. This product is a liquid that contains oil displacing chemicals which quickly dislodge oil, grease and other organic material from the surface of metals, so they can be quickly rinsed off with water or wiped off with a cloth. The material also contains phosphating and other rust removal chemicals that quickly dissolve rust, oxide and scale while the oil removal agents are operating.

The application of "Surprep" is relatively simple. It is used either full strength or diluted with water.

Showing the quick action of "Surprep" in removing oil and solid dirt from steel.

It is applied by brushing with a paint brush or wiping with a cloth. After the material has stood for several minutes, the surface can be wiped off with a cloth and it is then ready for painting. The surfaces can also be hosed off with water and then wiped dry. The surface is given a uniform etch and a light phosphate film is deposited which gives an excellent "tooth" for the paint or organic finish, resulting in greatly increased bond strength. No toxic vapors are evolved during the use of the cleaner.

It is supplied in one-gallon jugs, five and 12 gallon carboys, and 50-gallon barrels.

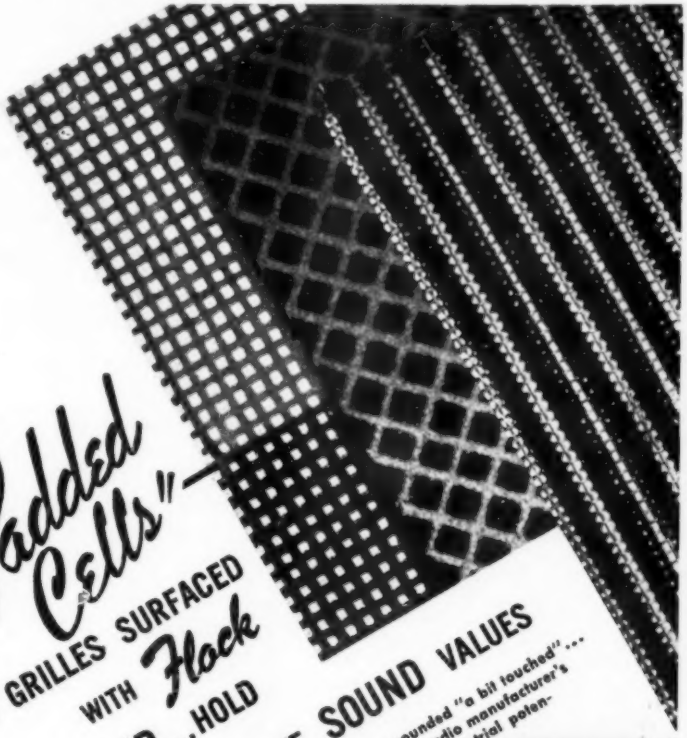
Merco Heat Ray (Tube) For Drying and Baking Paints

A new type of explosion proof heat tube, having particular application for industrial finishing, is now being placed on the market by Radiant Ray Corp., 5410 Airport Way, Seattle 8, Wash. Thorough and uniform drying of automobile refinishing jobs in five minutes is possible, according to the claims of the manufacturer.

Employing the radiant energy principle, the new unit consists of a heating element enclosed in a tube and mounted in a reflector which concentrates the available heat. The new patented tube is called the Merco Heat Ray.

In operation the new type unit gives off heat without visible light. It operates on 110-volt and 220-volt circuits and the required wattage ranges from 250 up to 1500. Tubes are about one inch in diameter and range in length from 12 to 47-in.

Development is the outgrowth of research into drying problems carried on for many years by the Preservative Paint Co., a Seattle organization of some 40 years of paint manufacturing experience.



"Padded Cells"

RADIO GRILLES SURFACED WITH Flock

TRANSMIT AIR... HOLD BACK DUST... IMPROVE SOUND VALUES

"Padded Cells"—while the idea may, at first, have sounded "a bit touched"... ingenuity and Flock finished off this problem to the radio manufacturer's complete satisfaction! Flock offers tremendous industrial potentials. New uses for it are being exploited every day. Investigate its possibilities. Write for details.

Radio Grilles courtesy of Bestcraft Prod. Co., Inc.

INQUIRIES INVITED

• Claremont Flock is available in bulk, in colors, in quantity for special spraying-on finishing purposes. Write for samples, color charts, prices.

CLAREMONT WASTE MFG. CO.

CLAREMONT, NEW HAMPSHIRE

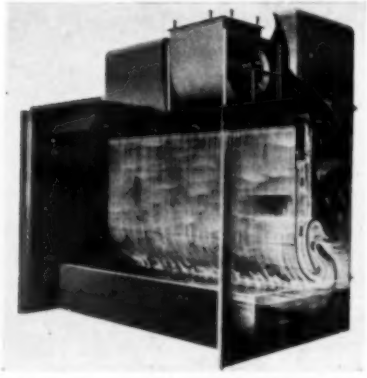
Roto-Wash Spray Booth

A revolutionary new paint spray booth which provides suction of paint laden air at both the top and bottom of the water curtain is announced by Newcomb-Detroit Co., 5741 Russell, Detroit 11, Mich. The new booth, called the Roto-Wash Spray Booth, also claims pre-assembled construction and simplified maintenance.

Since paint-laden air is drawn into the Roto-Wash booth both over and under the water curtain simultaneously, a more even flow of air is created across the face of the booth. This traps the maximum amount of paint overspray in the spraying area. It also permits a pre-wash of the air before it enters the washing section of the booth. The result is claimed to be cleaner, more healthful working conditions.

The washing principle employed in the booth is also a new design. The entire washing action is created by suction from the exhaust fan. Air passing over the water curtain is pre-washed as it passes down the rear of the water curtain. Air passing under the water curtain is washed as it goes through the water cascading from this curtain into the tank. At this point the two streams of water and air join and are carried into the scrubbing Roto-Wash torrent. As the spray-charged air stream passes through the Roto-Wash, its direction is reversed twice as it impinges against metal baffles. This results in a thorough scrubbing action and drop collisions which completely trap paint particles in water. The paint-laden water settles as sludge in the tank below.

As the air leaves the Roto-Wash, its velocity decreases sharply which separates the air and water. Remaining droplets of water are then separated out as the air passes the moisture separator before entering the exhaust fan, clean and free of paint and water.



Water is continuously recirculated by pumps.

Flex-a-Foam Filter Mask

The Goggle Parts Co., 1468 W. 9th St., Cleveland 13, Ohio, announces a new product — Flex-a-Foam filter masks for protection against non-toxic nuisance dusts. The mask is so light, comfortable and smartly-styled that workers welcome and wear it, even in cases where they have previously refused to wear conventional dust protection devices.

The Flex-a-Foam Filter weighs only one ounce, and is extremely simple in construction, consisting of only four interlocking parts. The filter is a honeycomb construction of whipped foam latex ventilated by hundreds of tiny inter-connecting cells that allow the passage of air but keep out non-toxic nuisance dusts as small as 1/25000 of an inch. Inner and outer frames are of DuPont's new poly-

1 plan helps prevent all 3

The experience of more than 20,000 companies shows how your company can benefit if you boost your employee-participation in the Payroll Savings Plan: The more U. S. Savings Bonds each employee holds, the more secure he feels. The more secure he feels, the greater his peace of mind—*the more contented, careful, and productive he is on the job.*

EVERYBODY BENEFITS!

The Bond buyer gets back $4, when his Bonds mature, for every $3 he invested. Not only do Bonds represent a backlog of purchasing power that will help assure future prosperity — Bonds also increase our security by spreading the national debt.

FIVE STEPS BOOST PARTICIPATION

1. See that a top management man sponsors the Plan.

2. Secure the help of the employee organizations in promoting it.

3. Adequately use posters and leaflets and run stories and editorials in company publications to inform employees of the Plan's benefits to them.

4. Make a person-to-person canvass, once a year, to sign up participants.

These first four steps should win you 40-60% participation. Normal employee turnover necessitates one more step:

5. Urge each new employee, at the time he is hired, to sign up.

All the help you need is available from your State Director, U. S. Treasury Department, Savings Bonds Division. He is listed in your telephone directory.

The Treasury Department acknowledges with appreciation the publication of this message by

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We remove

Baked, Air-Dried, Plastic and all other finishes from all base metals.

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Sprayers work easier and safer. Eliminates Nauseating Headaches

PULMOSAN R-151 Respirator

Neutralizes fumes of paint, lacquer, enamel—traps particles. Comfortable, durable, economical.

Pulmosan Safety Equipment Corp.

644 Pacific St., Brooklyn 17, N. Y.

thene plastic so flexible they adjust themselves to the contours of any face, yet so strong they're indestructible in normal usage. Flex-a-Foam's headbands are molded of natural rubber of a non-toxic. non-irritating quality. All parts can be sterilized by washing in warm, soapy water and immersing in a mild formaldehyde solution.

Portable Infra-Red Baking Unit

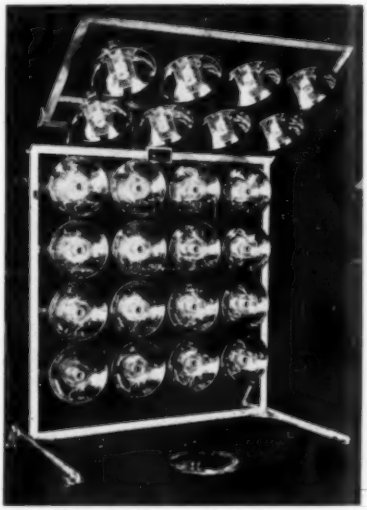
The Dry-Quick Portable Baking Panel Model 16 is announced by M. N. Kanouse, President of the Dry Clime Lamp Corp., Greensburg, Ind., manufacturers of the Dry Quick line of infra-red paint and industrial-drying equipment.

The Dry-Quick line includes several models of portable dryers, an automatic travelling oven for drying complete automobile bodies, and custom designed baking equiment for all types of industrial application.

Designed as an all-around utility drying unit with hundreds of uses, the Dry-Quick Portable Panel Model 16 contains 24 ceramic-type lava-coated infra-red heat generators of 500 watts each (110-220 volts AC or DC-single phase).

There are no bulbs to burn out or explode, and the panel is unaffected by vibration.

The Dry-Quick lava-coated ceramic-type infra-red heat generators are designed to stand up under years of continuous, rugged service. Each generator is a unit complete with highly polished aluminum reflector.



No bulbs to break in this infra-red unit.

The lower panel is 56-in. wide and 73-in. high. The upper panel is 29-in. high. Each row of four generators is controlled by a separate switch.

The upper panel is adjustable from vertical to nearly horizontal position.

The entire unit wheels easily into position. It is mounted on four double swivel casters, and has 20-ft. of 3-wire heavy-duty cable, with heavy duty plug and receptacle.

ANNOUNCING KIRCO "TWIN-COAT"

revolutionary *New* finish

Air-dries to handle in only

5 minutes and can be baked up to a week or more later!

New Kirco "Twin-Coat" is easily the most important advance in the field of industrial finishes since the departure from varnish-base paints! For Kirco "Twin-Coat", a *single* finish developed by the Kirker Chemical Company, air-dries for handling in exactly five minutes, but can be baked at any time up to a week or more later!

For finishing any item which must be coated separately on two or more areas, new Kirco "Twin-Coat" offers these *exclusive* advantages:

One bake now does what formerly required two or more!

No lost time for cooling means faster production!

Less handling time (no multiple baking and cooling) per unit means more economical production!

Same number of ovens and cooling units will now handle double the quantity of finished products!

With Kirco "Twin-Coat" you simply apply any number of successive coats on separate areas at intervals of five minutes or more, then bake them all at once at any time up to a week or more later! Kirco "Twin-Coat" comes in a complete range of colors and finishes from gloss to flat, with baking time variable to suit your requirements. It is exceptionally durable whether baked or air-dried, and is suitable for use on all metal, wood, plastic, and glass products.

Full information will gladly be sent on request.

KIRCO

Kirker CHEMICAL COMPANY

ONE EAST ELEVENTH STREET • PATERSON 4, NEW JERSEY

"Sanitol" Sta-Dull Polish

"Satinol" is a French polishing solution to use with fine sandpaper or steelwool to give finished surfaces a professional dull-rubbed luster which is often preferred over high gloss on much of the fine furniture, cabinet work, paneling and fixtures used in homes, offices, stores and public buildings. After proper treatment with this solution, the surfaces will retain their dull-rubbed effect. "Satinol" is a product of Star Chemical Co., 4500 W. Cermak Road, Chicago 23, Ill.

IDEAL TACK RAGS
FOR A PERFECT FINISH
Immediate Delivery
IDEAL CHEMICAL COMPANY
1689 Lee Road Cleveland 18, Ohio

Snyder Brothers Company
TOCCOA, GEORGIA
P. O. Box 548 Telephone 570
Manufacturers of High Quality Industrial Lacquers
SERVING THE SOUTHEAST
COMPLETE TECHNICAL SERVICE AT YOUR DISPOSAL

Perfection Rinsing Containers

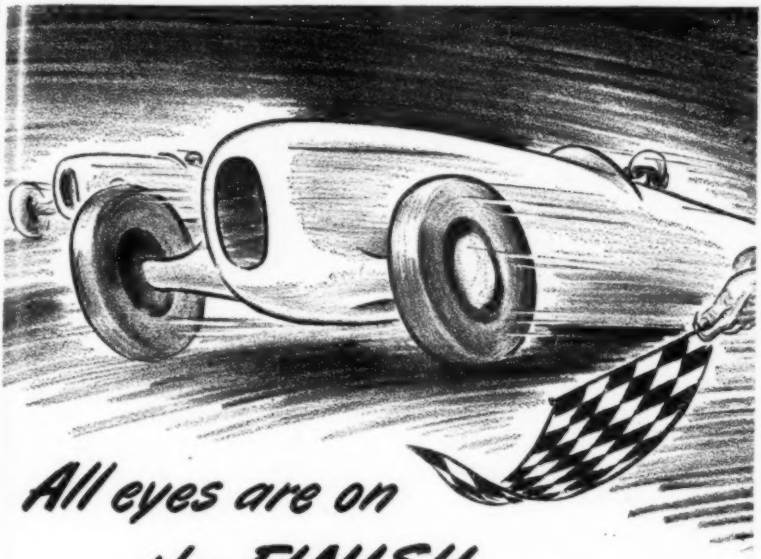
A rectangular sheet metal box with a hinged cover (see illustration) has been designed for holding rinsing thinner or solvent safely, where the liquid is used for cleaning small metal parts. If the contents should catch fire, the fusible link melts and the

In case of excessive heat a fusible link releases the hinged cover immediately.

cover closes automatically. Sizes range from 12x12x10-in. to 24x24x10-in. It is a product of Industrial Products Co., 2820 N. 4th St., Philadelphia 33, Penna.

Safe Oily-Waste Can

Any used 30 or 55-gallon drum can be quickly converted to a fire-safe container at low cost by means of a new device. The Protectoseal Self-Closing Drum Cover can be fastened to a steel drum by a single bolt which tightens a steel band. If temperature within or surrounding the drum reaches 160°F., a fusible-link melts, releasing a spring loaded plunger. This action closes the cover instantly, snuffing out fire within the steel drum or protecting contents of drum from outside ignition. For additional information, write The Protectoseal Co., 1920 S. Western Ave., Chicago 8, Ill.



All eyes are on the FINISH

. . . **And in the race for sales supremacy all eyes are on the finish of your product.** In creating sales appeal for your products, the eye-appeal and durability of the finish are all-important. If you want your sales totals to get the checkered flag, Stanley's policy of "Special Finishes for Special Applications" can help you.

For over 25 years countless finishing problems have been solved by Stanley chemists: tools and hardware have been protected from rust and corrosion; notion goods have been endowed with new sparkle; rubber goods have been safeguarded from wear and cracking—all by Stanley industrial coatings.

Whatever you make, let Stanley's research staff determine the finish that will put your product out front. Write, Stanley Chemical Co., East Berlin, Conn.

STANLEY

STANLEY CHEMICAL

INDUSTRIAL COATINGS

LACQUERS SYNTHETICS JAPANS ENAMELS

INFRA-RED OVENS (Lamped or Lampless)
Individually engineered in stationary, conveyorized, portable or special designs
Manufactured by
THE MISKELLA Infra-Red COMPANY
Main office: 7305 Grand Ave., Cleveland 4, Ohio

FOR ALL FINE FINISHES
TAC-ALL TACK RAGS
Packed bulk or individually.
Prices and samples on request.
GEO. W. RENNER CO.
2309 Lillie St., Ft. Wayne 5, Ind.

Spiral Fog Nozzle Produces Fine Atomization

A new spray nozzle which operates on a radically different principle is announced by the manufacturer, the Bete Fog Nozzle Co., Greenfield, Mass.

Produces fine atomization at low pressure.

The new line of Bete spray nozzles, on which several patents are pending, has a unique spiral design that produces a fine atomization, yet is practically non-clogging, according to the manufacturer. Nozzles shear from a single high-velocity jet, a continuous film which readily breaks up into uniformly fine particles at relatively low pressures. No vanes nor whirl discs are required.

"Fulcrum Action" Drum Truck

Ingenious fulcrum action at two points on a straight rocker of the new MorService Drum Cradle Truck enables one man to easily and safely handle drum loads up to 500-lbs. The straight rocker feature enables an operator to position the nose of the truck close to the bottom chime of a drum, where the truck stands upright alone, permitting operator to roll the drum over a safety catch located on the nosepiece. Drum and truck are then tilted as one unit to

(Continued on page 101)

Using tipping lever and drum-cradle truck.

horizontal position with little effort and absolute safety.

The manufacturer, Morse Mfg. Co., Inc., Syracuse 2, N.Y., is a pioneer producer of a complete line of drum, barrel and carboy handling equipment, and has recently introduced the Rotator, a portable, motorized drum cradle truck for mixing small batches of liquids, semi-liquids, powders, etc., in cylindrical containers from one gallon up to 55-gallon sizes; and for tumbling small parts and cleansing the inside of used cylindrical containers.

"King Size" Flo-master Fountnbrush

To meet the demand for "heavy duty" marking in industry, Cushman & Denison Mfg. Co., 133-5-7 W. 23rd St., New York 11, N. Y. has added a "King Size" to supplement the popular pocket size Flo-master Fountnbrush. The new marker, made of light-weight but sturdy aluminum, has large ink capacity. "King Size", with easily interchanged felt nibs, makes lines varying in width from ⅛ to one inch.

Filling the fountain of the Flo-master.

Besides corrugated cartons and wood crates, it will mark on metal, glass, cellophane, plastics, fabrics and many other "hard-to-mark" surfaces. It has the standard Flo-master leak-proof, automatic spring valve.

RESTORE PAINT IN 2 MINUTES

PER GALLON WITH
MIRACLE BLUE - BOY
5 GALLON
PAINT REJUVENATOR

Paints, lacquers and enamel products can be restored to their original consistency without opening the can. Units available to handle from ¼ pint to 50 gallon drums. Immediate delivery.

Originators of paint rejuvenating equipment---sixteen years---thousands of satisfied users.

Write for folder & prices

MIRACLE PAINT REJUVENATOR CO.
127 E. 9th Street St. Paul 1, Minn.

Young & Bertke Co. Opens New Manufacturing Division

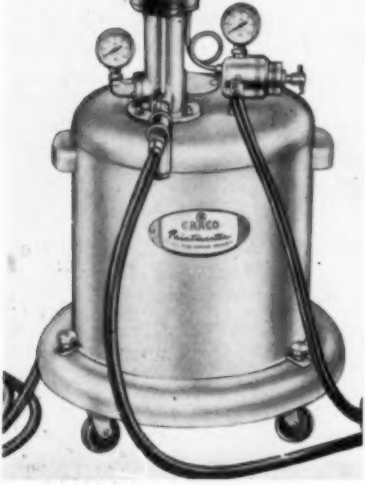
Young & Bertke Co., Cincinnati, Ohio (spray booths, ovens, air-conditioning and ventilating systems) announces the opening of a new manufacturing division at 2235 Buck St. This places the firm in position to offer the trade complete service on fabricating hot or cold-rolled steel, stainless steel, brass, aluminum and copper in complete units, sub-assemblies or parts---either of the customer's design or designed for the customer by Young & Bertke's engineering department. The company is ready to undertake any metal fabricating problem and assures its customers of prompt, efficient, economical service.

Agitates and Pumps Materials from Shipping Drums

The Graco Paintmaster is a new type of air-operated paint supply pump and agitator which delivers paint from shipping containers to spray guns at fluid pressures lower than are now commonly used. A positive displacement, immersion-type gear pump in the Paintmaster, driven by a rotary motor, delivers paint directly to the spray guns, or pumps it through circulating supply lines.

Paintmasters pump paint, enamel, lacquer and other finishing materials directly from original containers. An agitator at the base of the pump keeps paint thoroughly mixed, thereby maintaining uniform viscosity at all times. Paint in the circulating supply lines is ready to spray at a moment's notice.

Two sizes of Paintmasters are available. One is a portable 5-gallon model for both production and maintenance painting. The other is a 55-gallon model for pumping directly to the spray head, or functioning as the supply source for a circulating paint system. To change colors or finishes, the units can be quickly flushed clean by operating in a container of solvent.



A 5-gallon Paintmaster on portable base.

Two 55-gallon drums each fitted with Graco Paintmaster for agitating & pumping paint.

Important safety features are claimed. Fire hazards are reduced by housing the 55-gallon Paintmasters in a fireproof paint control room. Explosion hazards, due to excessive air pressures, are removed because no pressure container is used. And, since the shop floors are free of containers for transferring paint, working conditions are safe and plant "housekeeping" is simplified. These units are products of the Gray Company, Inc., 40½ Eleventh Ave., N.E., Minneapolis 13, Minnesota.

...the air you breathe, that is

when you wear a Dupor No. 4 respirator. Keeps dust, fumes, paint spray out. Gives double filter protection. You get controlled breathing through patented Dupor valves. Panorama vision eliminates blind spots, allows for use of glasses or goggles. Order today from . . .

H. S. COVER, SOUTH BEND, INDIANA

COVER'S GAS-TIGHT, FOG-PROOF GOGGLES . . . . $1.65 pp.

DUPOR

NO. 4

Sample Sent

$1.65 pp

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illustrated and described includes spray guns, dry and water-wash spray booths, portable and stationary compressors, air and fluid hose, pressure gauges, circulating pumps and systems, oil-and-water extractors, paint containers, turntables, exhaust piping and fans, lighting fixtures, and Thermatic (hot) spray units by which continuously circulating finishing material can be safely heated and maintained at any desired uniform temperature up to and including 200° F.

Air replacement systems, water-wash reclaiming-type spray booths and automotive booths are illustrated and described, along with photographic views of some equipment in service in factories.

The catalog really serves as an up-to-date and informative reference book for users of spray equipment and accessories. Important key men in concerns that use or expect to use spray-painting equipment are entitled to a copy of this fine new catalog free of charge.

Specifications for Finishes for Hardwood Floors

New specifications covering finishes for hardwood floors have been issued for the Maple Flooring Manufacturers Association by Foster D. Snell, Inc., New York chemical consulting firm and official laboratory for the Association. They establish standards for finishes for both heavy-duty and gymnasium floors and are designed to give users of these products the benefit of technological improvements in the intervening years.

Products found to meet these specifications when tested by the official laboratory (Foster D. Snell, Inc.) are placed on the MFMA approved list issued by the Association from time to time, and can be advertised and sold as approved products.

Copies of the specifications can be had by those interested from Foster D. Snell, Inc., 29 W. 15th St., New York 11, N.Y., or from the Maple Flooring Manufacturers Association, 46 Washington Boulevard, Oshkosh, Wisc.

New Bulletin on Cleaning Pipe Preparatory to Coating

Industry Report No. 534, entitled "The Use of the Airless Wheelabrator in Pipe Line Construction" has been prepared by American Wheelabrator & Equipment Corp., 555 S. Byrkit St., Mishawaka, Ind. Pictures are used to show various installations for cleaning both new pipe and pipe that has been taken from the ground and is being reconditioned.

Pipe, for a pipe line, whether it is to carry water, natural gas, or oil, must be coated on the outside to prevent or retard corrosion. The degree of protection that any pipe line receives from a coating is dependent, to a large extent, on the condition of the surface before the coating is applied. Before a protective coating can

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be applied, the scale and rust on the outside of the pipe must be removed. This is true whether the pipe is brand new or is used pipe that is being reconditioned.

The airless Wheelabrator hurls an avalanche of metallic abrasive which scours away every trace of foreign material. The slightly roughened, thoroughly clean surface provided by the Wheelabrator assures an excellent bond between the metal and the coating material.

A copy of Bulletin No. 534 may be obtained by writing directly to the manufacturer.

Quick-Reference Aid for Industrial Lighting

Publication of a new, 40-page "Quick-Reference" Catalog Bulletin, describing and illustrating the most widely used Benjamin Lighting Units, is announced by Benjamin Electric Mfg. Co., Des Plaines, Ill. According to the company, the new bulletin answers a definite need for concise, up-to-date information on the wide range of Benjamin Units used for modern Planned Lighting Systems.

Small Paint Mixers

Illustrated bulletins are now available on the Thoro-Mixer manufactured by The Standard Churn Co., Wapakoneta, Ohio. The mixing is done thoroughly and right down to the bottom of the can. Bulletins describe how Thoro-Mixer saves hours of tedious hand stirring of paint and avoids the mess, inconvenience and waste of splashing. Thoro-Mixers are available to fit both one and five gallon cans. For further information address The Standard Churn Co., Dept. 130, Wapakoneta, Ohio.

Firm of Consulting Chemists Will Test Furniture Finishes

In an 8-page booklet entitled, "Testing of Furniture Finishes," Foster D. Snell, Inc., 29 W. 15th St., New York 11, N.Y., declares that its "organization maintains a finish unit which for many years has specialized in the testing of furniture finishing systems and serves many manufacturers in the prevention and solution of finish difficulties. Skilled personnel are called upon for plant visits to inspect and advise concerning finishing problems.

"We are fully equipped to apply finishes under controlled conditions in the laboratory and to conduct a large variety of tests for the purpose of determining the relative merits and shortcomings of all elements of the finish. We are frequently instrumental in suggesting corrective measures for overcoming deficiencies, and our advice concerning the use or sale of finishing materials has saved tens of thousands of dollars for both the finish user and supplier."

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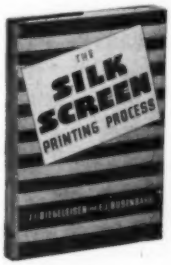
By J. I. Biegeleisen and E. J. Busenbark

THIS LATEST book on the subject covers everything that is worth while to have in book form about the silk screen printing process. It covers in detail all of the equipment, printing apparatus, tools, etc., and the paints and materials that become the finished product: tells how to select them for various purposes and how to handle them for best results.

Information is given about the reproduction of printing and art work by this process on various surfaces such as paper, cardboard, cloth, felt, wood, metal and composition materials. Also, the making of drawings and stencils, finishing work, estimating costs, shop management and recent developments.



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Industrial FINISHING Editorial

Foremen Must Know "Company Policy"

★ Your would not think of turning over your finishing department to a foreman who lacked proper understanding of the equipment found there. "We have a lot of money tied up in that equipment," you would explain; "so naturally we must make certain that nothing happens to such a vital part of our industrial setup."

In the same way you expect your foremen to appreciate the high cost of supplies. You would not hesitate to make direct suggestions on how to get full value for such expenditures.

But do you make sure that your men have en equally thorough understanding of your plant policy? Have you taken time for an indoctrination course in how you want them to handle all the various problems of personnel that are covered by established policy, as well as the "unwritten laws" that seem to grow up in every business and industry? In brief, do your foremen know as much about policy as they do about equipment and supplies?

Few executives realize how large an investment they have tied up in plant policy. Only through trial and error have they arrived at the present degree of perfection in this respect. *Every experiment that leads to some improvement in policy has had a definite price tag attached; the total can be a staggering amount.* And all this investment is risked when a foreman is permitted to take over his duties before he fully understands not only the details of plant policy but also the reason back of each rule and regulation.

Too much is left to chance if leaders in the finishing department know merely the outline of your policies without being completely "sold" on the ideas back of your instructions. Only by explanation of how you have arrived at the decisions on which policy is based, can you hope for full co-operation and accord. Then if the foreman has suggestions to offer, they will be intelligent and worth considering. Even the finest policy can be improved from time to time, but it should be done in an orderly manner.

When you entrust policy and worker relations to the foreman in your finishing department, keep in mind how dearly your experience has been bought. And then be sure he understands every detail of policy fully as well as he knows how to handle your equipment and supply investment.—G.M.D.

★ *Guest Editorial . . . Many readers can write an excellent editorial—two or three paragraphs that present a timely suggestion or valuable idea which will stimulate thought on a live subject. The Editor welcomes guest editorials and pays for those used.*

Apprentice Training

As far back as 1941 the State of New York took steps to provide industry with skilled workers through apprentice training. An Apprenticeship Council was established, composed of three members from management, three from labor unions and one private individual. All were

appointed by the Governor. Field studies were made to determine the need and by 1945, 800 companies were cooperating by training 866 apprentices. By July 31 of this year, 30,000 firms were training 30,629 apprentices; 218 different crafts are being taught.

The Council determines the length of the training period which lasts from two to seven years, depending upon the particular craft. During this period, the apprentice receives an average wage of at least 50% of what a journeyman in the same company receives.

Proof of the success of the plan is shown in the enormous increase in cooperating firms and apprentices in the 4-year post-war period.

In most states the average age of the skilled worker is much too high. Retirement and death are reducing the ranks at an alarming rate. Both management and experienced workers have long deplored the loss of the apprentice system and the class of worker it produced. This modern version seems to be the answer. Industries in other states should get behind their Legislatures to pass the necessary laws. Everybody gains with such a plan, the worker, industry and the community.

Turco Had Interesting Exhibit at Cleveland Metal Show

Turco Products, Inc., manufacturer of industrial cleaning compounds, had an interesting exhibit at the Cleveland Metal show in October.

In booth No. 1406, Turco spotlighted the various Turco materials used, before organic finishing, for cleaning metal in spray washers and hot tanks. Turco materials for treating metals in order to provide a better bond for paint were also featured.

The exhibit was a merchanized display consisting of two synchronized moving belts. One belt carried soiled objects; the other displayed the same objects after cleaning by Turco materials.

In order to highlight each cleaning operation, the entire movement was fitted with a series of timed lights originating from a central light bank.

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Check Solvent Safety; Ventilation Needed

As winter approaches, ventilating arrangements and other safeguards intended to protect workers in solvent-using departments should be re-examined.

During the summer months, it may be that natural ventilation from windows and doors has taken care of some of the load of removing solvent vapors. With the drop in temperature, this source of ventilation will be cut off and other means of vapor removal, such as mechanical ventilation, will increase in importance. It is therefore desirable to check ventilating systems before the winter season to make certain that they are adequate, functioning properly and in good repair.

During warm weather, occasional jobs with solvents may be done outdoors. When such work is moved indoors, respirators are often depended upon to prevent vapor inhalation. Respirators, too, should be checked to make certain that they are in good condition and ready for use. Where canister-type respirators are provided, it is important to check the service record of the canisters to assure that their contents have not outlived their usefulness.

Winter months may bring an increase in dermatitis, because of the increase in dry, chapped skin. A good lubricating cream, provided near the washstand, will be helpful in preventing skin difficulties from solvents.—*Safety Research Institute.*

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Dudley B. Blake Becomes G. S. M. of United Lacquer Mfg. Corp.

Dudley B. Blake has been appointed General Sales Manager of United Lacquer Mfg. Corp., Linden, N. J., and Everett, Mass., manufacturers of industrial finishes, synthetics and paints. Mr. Blake will supervise industrial sales promotion and a concentrated national expansion program.

Dudley B. Blake is now General Sales Manager of United Lacquer.

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For Processing • Varnish Baking • Paint and Lacquer Drying • Lithographing and Decorating. Batch or Conveyor Types for any fuel. Write for Bulletin 3.

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CHEM-SCALE PEARLESCENT finishes are very effective for artificial pearls, costume jewelry, buttons, buckles, pencils, fish lures, artificial flowers, cosmetic accessories, clocks, caskets, office fixtures, appliances, automotive panels, hardware, etc.

CHEM-SCALE, a brilliant PEARLESCENT white pigment for decorative finishes, is supplied in concentrated form (12½%) dispersed (1) in nitrocellulose dissolved in butyl acetate and (2) in cellulose acetate dissolved in methyl "cellosolve" acetate; also in paste form consisting of 25% CHEM-SCALE incorporated in various solvents and diluents to meet customer specifications. CHEM-SCALE is shipped in one gallon glass containers or five gallon metal pails lined with polyethylene.

Write for sample and submit specifications and requirements.

SHUMAN CHEMICAL PRODUCTS, INC.

58 JOHN HAY AVE. KEARNY, N. J.

Formulation of Paint Is What's Important

A questionnaire about the uses and merits of rubber-base paints was sent out recently to paint manufacturers. It brought forth many interesting replies. One of the most thought-provoking comments—and a signed one too—was as follows:

"To keep you on the beam we would point out that the use of rubber in paints, of itself, means but little unless the formula is well designed. An all-rubber finish is useless. It is very much like a baseball team with a star pitcher but no team to back him up. It is team work that counts in a rubber-base paint and no one formula can do everything; that is why we have a great many of them.

"Having made rubber-base paints for more than 20 years, we pass on to you the above so that possibly some buyer will be saved by the warning that all rubberbase paints are not necessarily tops."

This is something to think about. What the reply stated here in reference to rubber-base paints applies also to other types of finishing materials—varnishes, lacquers, synthetic enamels, stains and fillers. The formulation of the material by the concern that makes and sells it is the important thing to consider. The formulation or make-up of a material to suit a certain concern's product requirements and factory conditions — in other words a tailor-made finish—may work perfectly in one establishment or in a certain type of manufacturing plants, but not so well elsewhere as a material formulated differently to coat other products which are made and used under different conditions. It's a point well made and something for all users to remember.

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Your partner in Solving Bronze Powder Problems
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Random Comment on the Industrial Scene

(Continued from page 7)

sition, the resultant film or coating retains all of the oil resistant properties of Hycar rubber in addition to possessing excellent adhesive strength.

* * *

Air Conditioning. J. W. Barker, President of Research Corp., 405 Lexington Ave., New York 17, N.Y., announces that the Niagara Blower Co. has been awarded license to manufacture dehumidifying and air conditioning equipment under its series of patents covering the removal of moisture from air by the use of a hygroscopic liquid.

In the method developed by Research Corporation's scientists, air is dehumidified by contact with a liquid spray which absorbs moisture from an air stream passing through the equipment. The dehumidifying liquid, as it is diluted by airborne moisture, is automatically re-concentrated in apparatus which evaporates the moisture and discharges it outdoors. This provides a continuous process which promises improvement in the making and handling of many products and materials that pick up unwanted moisture. There are also applications to industrial drying and process air conditioning, and in preventing moisture damage to metal products.

* * *

New Furniture Wood. Chenchen is the name of a new furniture wood. It has the grain pattern of mahogany, but does not belong to that family. The color is about the same as satinwood, therefore it requires no bleaching when used in furniture to be finished in the modern light tones. The texture of this new tropical wood is slightly softer than mahogany.

A Gas Safety Device has been been developed to eliminate the danger of explosion during ignition, operation and shut-off of gas-fired ovens, kilns and driers. This new combustion safeguard operates electronically. It is called the Bristol Electronic Pyrotrol.

* * *

California Furniture from California was shown recently in New York. Designed by Paul Laszlo, architect, it is made of Philippine mahogany, finished in warm reddish tones. The long horizontal lines and box-like appearance of some cabinets have been offset by wood trim such as panels, ridges and slightly curved moldings. Arc wood moldings extend the full width of some drawer fronts and serve as pulls. Copper hardware blends admirably with the wood finish.

* * *

New Tank Lining. A new lead alloy is designed for use in chromium plating. It is said to last longer than the present metals used in tank linings, heating and cooling coils, and is resistant to the corrosive action of chromic acid solutions. It is available in both sheets and pipe, and may be worked and cut as easily as other metals.

* * *

Now Modular Lighting. The trend toward standardized units has invaded the lighting industry. An alert manufacturer announces a new lighting system of fluorescent units which can be put together with innumerable combinations to fit almost any lighting condition.

The new system consists of four units each with a single or multiple standard measurement of 16¼-in. They can be put together end to end, side to side, or end to side. This, with the 90° angle unit, makes any pattern of either ceiling or wall lighting possible.

Carson to Arco Company

Malcolm E. Carson, formerly Chief Chemist for a paint company in Baltimore, Maryland, has joined the staff of the Products Development Laboratory of the Arco Company, Cleveland, Ohio.

To Small Users of Finish Materials

We specialize in serving the smaller users with the very latest type of Industrial Materials in small quantities; NGR stains, pigment stains, fillers, sealers, reducers, retarders, lacquers, varnishes. A half-pint or five gallons will be mailed out to you, the day your order arrives. Write for catalog.

Gaston Finishes, Bloomington, Ind.

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Enamel Chemist Formulator. Growing centrally located industrial paint manufacturer desires an enamel chemist formulator. State educational background, experience and salary desired. Address IF-659, care Industrial Finishing.

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The right man is an experienced finishes salesman with established business. There are good territories open with a liberal drawing account and commission for a good producer.

Our products, principally lacquers and synthetics, have established sales acceptance in a highly competitive market. Are you the right man? Why not write ABLON FINISHES, Inc., 84 Waydell St., Newark 5, N. J.

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SALESMAN.

Experienced man required for California by Pacific Coast manufacturer of industrial finishes. An excellent opportunity for the right man. Please write in detail. Address IF-671, care Industrial Finishing.

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Old, established, successful manufacturer of specialized paints and protective coatings will soon introduce a revolutionary new finish to the original equipment market. We're looking for a man to head the sales of that division. The man we want will not be over 40, will have had substantial experience in selling high-gallonage unit sales to manufacturers, will be able to establish dealership outlets for replacement markets. Tell us all about yourself in a letter with particular reference to the details of your past experience and salary expected.

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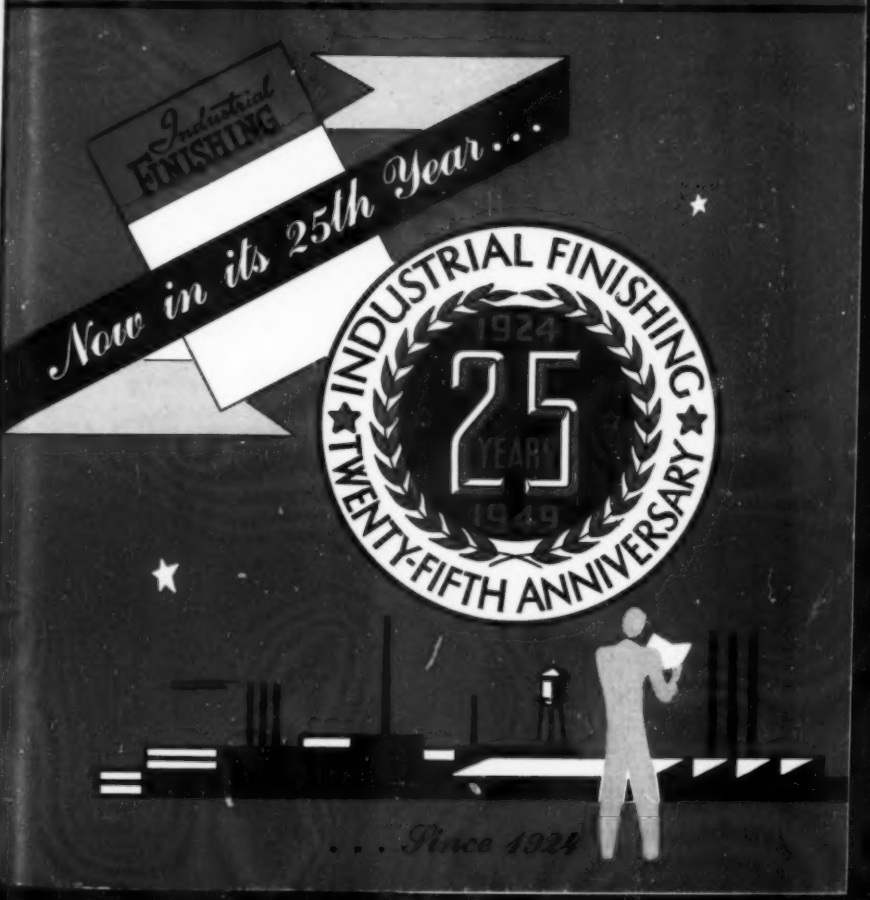
AUGUST, 1949

Industrial FINISHING

Published Monthly in the Interest of Product Cleaning and Painting by Practical Publications, Inc., 1142 N. Meridian Street, Indianapolis 4, Ind.



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New engineering design insures top speed performance in the Navy's jet propelled fighters, like the Grumman Panther shown above.

Even the lacquer finish that protects these ships against corrosion has been refined to reduce skin friction and resultant drag.

Finishes Division of Interchemical Corporation has been successful in producing, to Navy specifications, a glossy sea blue finishing lacquer in which the pigment dispersion is so smooth and the solvent balance so nicely adjusted that the protective film is glassy smooth and sleek in the air stream.

Development of this sea blue lacquer for the Navy's new jet propelled aircraft is evidence that Interchem Finishes Laboratories are abreast of the changing requirements of the Armed Forces, brought about by new developments in military equipment of all types.

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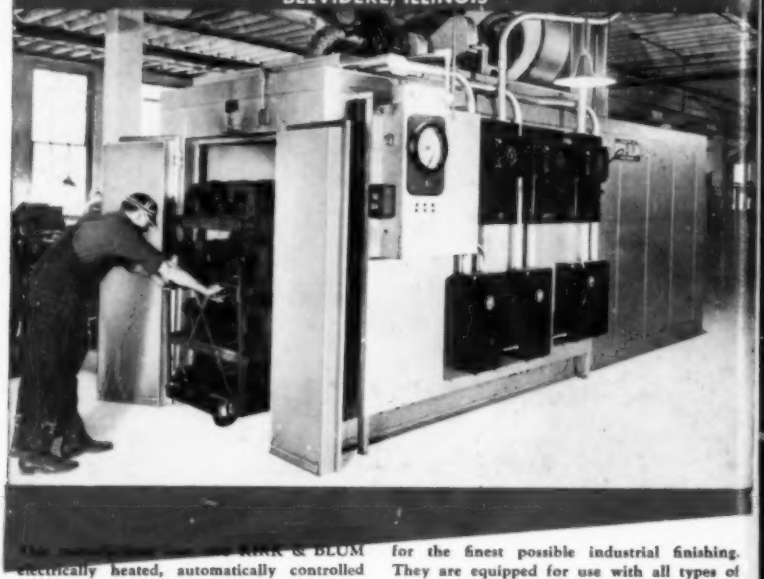


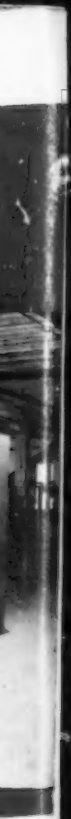
The [illegible] KIRK & BLUM electrically heated, automatically controlled ovens to bake wrinkle finishes on sewing machine parts. In operation, a loaded truck is pushed into the ovens every twelve minutes (automatically timed); when the fifth truck enters, the first is removed at the other end, allowing a total time of 48 minutes in the 20-foot long tunnel. As shown above, automatic controls, recording thermostat and line switches are compactly mounted on the side of the oven. The two ovens have a capacity of 20 truckloads per 8-hour day.

Ideally suited for the particular job, yet designed with ample factors for increased or changed production, KIRK & BLUM Ovens permit close control of heat and time factors for the finest possible industrial finishing. They are equipped for use with all types of fuel and with a wide variety of controls to suit your particular requirements, in sizes from laboratory models to large conveyorized types.

If you have a heating, drying or baking operation, investigate the performance, economy and safety of KIRK & BLUM Ovens. Write for catalog "Industrial Ovens." The Kirk & Blum Mfg. Co., 2831 Spring Grove Ave., Cincinnati 25, Ohio.

KIRK AND BLUM

INDUSTRIAL OVENS



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